XM-4060GTX

SERVICE MANUAL

Ver. 1.1 2005. 05

US Model
Canadian Model
AEP Model
UK Model
E Model

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS (US MODEL)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION
60 watts per channel minimum continuous average power into 4 ohms, both channels driven from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion per Car Audio Ad Hoc Committee standards.

Other Specifications

Circuit system	OTL (output transformerless) circuit Pulse power supply
Inputs	RCA pin jacks High level input connector
Outputs	Speaker terminals
Suitable speaker impedance	2 – 8 Ω (stereo) 4 – 8 Ω (when used as a bridging amplifier)
Maximum outputs	Four speakers: 120 W × 4 (at 4 Ω) 150 W × 4 (at 2 Ω) Three speakers: 120 W × 2 + 300 W × 1 (at 4 Ω)
Rated outputs (supply voltage at 14.4 V)	Four speakers: 60 W × 4 (20 Hz – 20 kHz, 0.08% THD, at 4 Ω) 75 W × 4 (20 Hz – 20 kHz, 0.1% THD, at 2 Ω) Three speakers: 60 W × 2 + 150 W × 1 (20 Hz – 20 kHz, 0.1% THD, at 4 Ω)
Frequency response	5 Hz – 50 kHz ($^{+0}_{-3}$ dB)
Harmonic distortion	0.005% or less (at 1 kHz)
Input level adjustment range	0.3 – 6.0 V (RCA pin jacks) 1.2 – 12 V (High level input)
High-pass filter	50 – 300 Hz, –12 dB/oct
Low-pass filter	50 – 300 Hz, –12 dB/oct
Low boost	0 – 10 dB (40 Hz)
Power requirements	12 V DC car battery (negative ground)
Power supply voltage	10.5 – 16 V
Current drain	at rated output : 31 A (4 Ω) Remote input : 1 mA
Dimensions	Approx. 400 × 55 × 276 mm (w/h/d) (15 3/4 × 2 1/4 × 10 7/8 in.) not incl. projecting parts and controls
Mass	Approx. 4.6 kg (10 lb. 3 oz.) not incl. accessories
Supplied accessories	Mounting screws (4) High level input cord (1) Protection cap (1)

Design and specifications are subject to change without notice.

STEREO POWER AMPLIFIER

9-961-369-02
2005E04-1
© 2005. 05
Sony Corporation
e Vehicle Group
Published by Sony Engineering Corporation

SONY®

TABLE OF CONTENTS

1. GENERAL

Location and Function of Controls 3
Connections 4

2. DISASSEMBLY

2-1. Bottom Plate 6
2-2. Main Board Section 7
2-3. Main Board, Hi-level Board 7
2-4. LED Board 8

3. ELECTRICAL ADJUSTMENT 9

4. DIAGRAMS

4-1. IC Block Diagram 10
4-2. Block Diagram 11
4-3. Printed Wiring Board –Main Section– 12
4-4. Schematic Diagram –Main Section (1/2)– 13
4-5. Schematic Diagram –Main Section (2/2)– 14
4-6. Printed Wiring Boards –Hi-level, LED Section– 15

5. EXPLODED VIEWS

5-1. Heat Sink (Main) Section 16
5-2. Main Board Section 17

6. ELECTRICAL PARTS LIST 18

Notes on Chip Component Replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

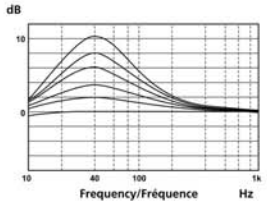
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

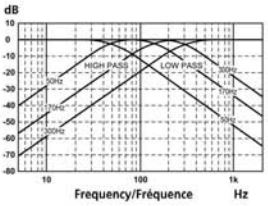
SECTION 1
GENERAL

This section is extracted from instruction manual.

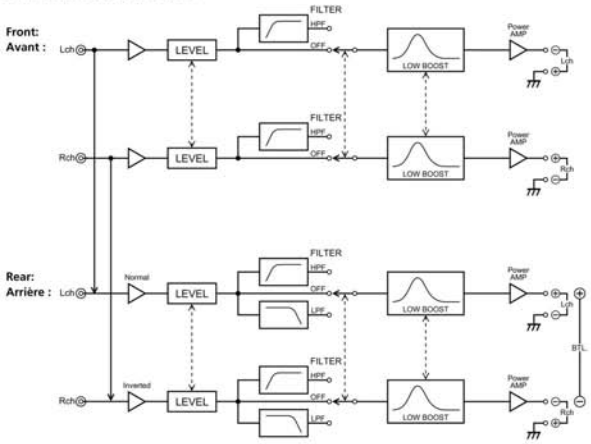
Low boost
Amplification de basses fréquences



Cut-off frequency
Fréquence de coupure



Circuit Diagram
Schéma du circuit



Features

- Maximum power output of 120 W per channel (at 4 Ω).
- This unit can be used as a bridging amplifier with a maximum output of 300 W.
- Direct connection can be made with the speaker output of your car audio if it is not equipped with a line output (High level input connection).
- Built-in variable LPF (Low-pass filter), HPF (High-pass filter) and low boost circuit.
- Protection circuit and indicator provided.
- Pulse power supply* for stable, regulated output power.

* ***Pulse power supply***
This unit has a built-in power regulator which converts the power supplied by the DC 12 V car battery into high speed pulses using a semiconductor switch. These pulses are stepped up by the built-in pulse transformer and separated into both positive and negative power supplies before being converted into direct current again. This light weight power supply system provides a highly efficient power supply with a low impedance output.

Caractéristiques

- Puissance de sortie maximale de 120 W par canal (à 4 W).
- Cet appareil peut être utilisé comme amplificateur en pont d'une sortie maximale de 300 W.
- Une connexion directe est possible avec la sortie haut-parleur de votre autoradio si celle-ci n'est pas équipée d'une sortie de ligne (connexion d'entrée haut niveau).
- Filtre passe-bas (LPF), filtre passe-haut (HPF) variables et circuit d'amplification des graves intégrés.
- Avec circuit et indicateur de protection.
- Alimentation électrique par impulsions* pour une puissance de sortie stable, régulée.

* ***Alimentation électrique par impulsions***
Cet appareil est équipé d'un régulateur de puissance intégré qui convertit la puissance fournie par une batterie de voiture de 12 V CC en impulsions ultra-rapides au moyen d'un commutateur à semi-conducteur. Ces impulsions sont amplifiées par le transformateur d'impulsions intégré et séparées en alimentation positive et négative avant d'être reconverties en courant continu. Ce système d'alimentation de faible poids assure une alimentation électrique très efficace pour une sortie d'impédance faible.

Location and Function of Controls

1 **POWER/PROTECTOR indicator**
Lights up in green during operation. When the PROTECTOR is activated the indicator will change from green to red. When the PROTECTOR is activated refer to the TroubleShooting Guide.

2 **FILTER selector switch**
When the switch is in the LPF position, the filter is set to low-pass. When in the HPF position, the filter is set to high-pass.

3 **Cut-off frequency adjustment control**
Sets the cut-off frequency (50 – 300 Hz) for the low-pass or high-pass filters.

4 **LOW BOOST level control**
Turn this control to boost the frequencies around 40 Hz to a maximum of 10 dB.

5 **LEVEL adjustment control**
The input level can be adjusted with this control. Turn it in the clockwise direction when the output level of the car audio seems low.

Emplacement et fonction des commandes

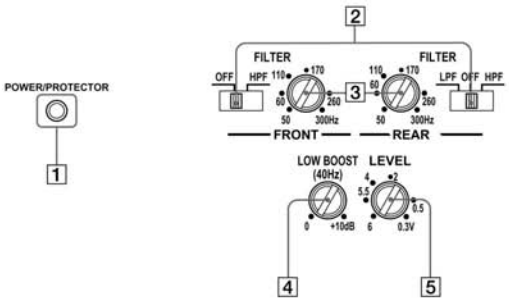
1 **Indicateur POWER/PROTECTOR**
S'allume en vert en cours de fonctionnement. Lorsque PROTECTOR est activé, le voyant passe du vert au rouge.
Lorsque PROTECTOR est activé, reportez-vous au guide de dépannage.

2 **Commutateur de sélection FILTER**
Lorsque le commutateur de sélection est en position LPF, le filtre est réglé sur passe-bas. Lorsqu'il est en position HPF, le filtre est réglé sur passe-haut.

3 **Commandes de réglage de la fréquence de coupure**
Règle la fréquence de coupure (50 – 300 Hz) des filtres passe-bas ou passe-haut.

4 **Commande de niveau LOW BOOST**
Tournez cette commande pour amplifier les fréquences autour de 40 Hz jusqu'à un maximum de 10 dB.

5 **Commande de réglage LEVEL**
Le niveau d'entrée peut être réglé avec cette commande. Tournez cette commande dans le sens des aiguilles d'une montre lorsque le niveau de sortie de l'autoradio semble faible.



Connections

Precautions

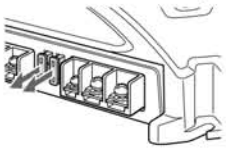
- This unit is designed for negative ground 12 V DC operation only.
- Use speakers with suitable impedance.
  — 2 – 8 Ω (stereo) , 4 – 8 Ω (when used as a bridging amplifier).
- Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the amplifier and active speakers.
- Avoid installing the unit in areas subject to:
  — high temperatures such as from direct sunlight or hot air from the heater
  — rain or moisture
  — dust or dirt
- If your car is parked in direct sunlight and there is a considerable rise in temperature inside the car, allow the unit to cool down before use.
- When installing the unit horizontally, be sure not to cover the fins with the floor carpet etc.
- If this unit is placed too close to the car radio or antenna, interference may occur. In this case, relocate the amplifier away from the car radio or antenna.
- If no power is being supplied to the master unit, check the connections.
- This power amplifier employs a protection circuit* to protect the transistors and speakers if the amplifier malfunctions. Do not attempt to test the protection circuits by covering the heat sink or connecting improper loads.
- Do not use the unit on a weak battery as its optimum performance depends on a good power supply.
- For safety reasons, keep your car audio volume moderate so that you can still hear sounds outside your car.
- By default, the FILTER switch is in "OFF" position. When connecting the full range speaker, set to the "OFF" position.

Fuse Replacement

If the fuse blows, check the power connection and replace both the fuses. If the fuse blows again after replacement, there may be an internal malfunction. In such a case, consult your nearest Sony dealer.

Warning

When replacing the fuse, be sure to use one matching the amperage stated above the fuse holder. Never use a fuse with an amperage rating exceeding the one supplied with the unit as this could damage the unit.



* ***Protection circuit***
This amplifier is provided with a protection circuit that operates in the following cases:
— when the unit is overheated
— when a DC current is generated
— when the speaker terminals are short circuited
The POWER/PROTECTOR indicator lights up in red and the unit will shut down.
If this happens, turn off the connected equipment, take out the cassette tape or disc, and determine the cause of the malfunction. If the amplifier has overheated, wait until the unit cools down before use.

If you have any questions or problems concerning your unit that are not covered in this manual, please consult your nearest Sony dealer.

Connexions

Précautions

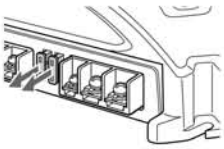
- Cet appareil est conçu pour fonctionner uniquement sur courant continu de 12 V avec masse négative.
- Utilisez des haut-parleurs d'une impédance appropriée.
  — 2 – 8 Ω (stéréo) , 4 – 8 Ω (utilisé comme amplificateur en pont).
- Ne raccordez pas de haut-parleurs actifs (avec amplificateur intégré) aux bornes de haut-parleurs de cet appareil. Cela risquerait en effet d'endommager l'amplificateur et les haut-parleurs actifs.
- N'installez pas l'appareil à un endroit exposé à :
  — des températures élevées, par exemple soumis au rayonnement direct du soleil ou près d'un conduit de chauffage
  — la pluie ou à l'humidité
  — de la poussière ou à des saletés
- Si votre voiture était garée en plein soleil et que la température a considérablement augmenté à l'intérieur, laissez refroidir l'appareil avant de l'utiliser.
- Si vous installez l'appareil à l'horizontale, ne recouvrez pas les ailettes de ventilation par le tapis de sol ou autre chose.
- Si cet appareil est placé trop près de l'autoradio ou de l'antenne, il se peut que des interférences se produisent. Dans ce cas, éloignez l'amplificateur de l'autoradio ou de l'antenne.
- Si l'appareil principal n'est pas alimenté, vérifiez les connexions.
- Cet amplificateur est équipé d'un circuit de protection* destiné à protéger les transistors et les haut-parleurs en cas dysfonctionnement de l'amplificateur. Ne tentez pas de tester les circuits de protection en couvrant l'accumulateur de chaleur ou en branchant des charges inadéquates.
- N'utilisez pas l'appareil sur une batterie faible, car ses performances optimales dépendent d'une bonne alimentation électrique.
- Pour des raisons de sécurité, écoutez l'autoradio à un volume modéré afin d'entendre les bruits extérieurs.
- Le réglage par défaut du commutateur FILTER est « OFF ». Lors du raccordement du haut-parleur à gamme étendue, réglez ce commutateur sur « OFF ».

Remplacement du fusible

Si le fusible grille, vérifiez le branchement de l'alimentation et remplacez les deux fusibles. S'il grille de nouveau après avoir été remplacé, il est possible qu'il y ait un dysfonctionnement interne. Dans ce cas, consultez votre cdistributeur Sony.

Avertissement

En cas de remplacement du fusible, veillez à respecter l'ampérage indiqué au-dessus du logement du fusible. N'utilisez jamais de fusible dont l'ampérage dépasse celui du fusible fourni avec l'appareil, car vous risqueriez d'endommager l'appareil.



* ***Circuit de protection***
Cet amplificateur est équipé d'un circuit de protection qui s'active dans les cas suivants :
— Surchauffe de l'appareil
— Production d'un courant continu
— Court-circuit aux bornes des haut-parleurs
L'indicateur POWER/PROTECTOR s'allume en rouge et l'appareil s'arrête.
Si le cas se présente, éteignez tout appareil raccordé et éjectez la cassette ou le disque compact avant d'examiner la cause de la défaillance. Si l'amplificateur a surchauffé, attendez qu'il refroidisse.

Pour toute question ou problème qui ne serait pas traité dans ce manuel, consultez votre distributeur Sony.

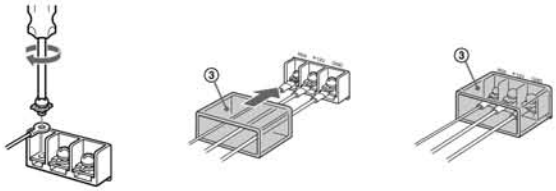
Caution

- Before making any connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Be sure to use speakers with an adequate power rating. If you use small capacity speakers, they may be damaged.
- Do not connect the ⊖ terminal of the speaker system to the car chassis, and do not connect the ⊖ terminal of the right speaker with that of the left speaker.
- Install the input and output cords away from the power supply wire as running them close together can generate some interference noise.
- This unit is a high powered amplifier. Therefore, it may not perform to its full potential if used with the speaker cords supplied with the car.
- If your car is equipped with a computer system for navigation or some other purpose, do not remove the ground wire from the car battery. If you disconnect the wire, the computer memory may be erased. To avoid short circuits when making connections, disconnect the +12 V power supply wire until all the other wires have been connected.

Attention

- Avant d'effectuer les connexions, débranchez le fil de masse de la borne de la batterie pour éviter un court-circuit.
- Utilisez des haut-parleurs de puissance adéquate. Si vous utilisez des haut-parleurs de faible capacité, ils risquent d'être endommagés.
- Ne raccordez pas la borne ⊖ des haut-parleurs à la carrosserie de la voiture ni la borne ⊖ du haut-parleur droit à celle du haut-parleur gauche.
- Eloignez les cordons d'entrée et de sortie du fil d'alimentation électrique pour éviter que des interférences ne se produisent.
- Cet appareil est un amplificateur de haute puissance et il peut ne pas atteindre sa puissance maximale si les cordons de haut-parleurs originaux de la voiture lui sont raccordés.
- Si votre voiture est équipée d'un système de navigation ou d'un ordinateur de bord, ne débranchez pas le fil de masse de la batterie de la voiture. Si vous débranchez ce fil, toute la mémoire de l'ordinateur sera effacée. Pour éviter un court-circuit lorsque vous effectuez les branchements, branchez le fil d'alimentation de +12 V uniquement après avoir branché tous les autres fils.

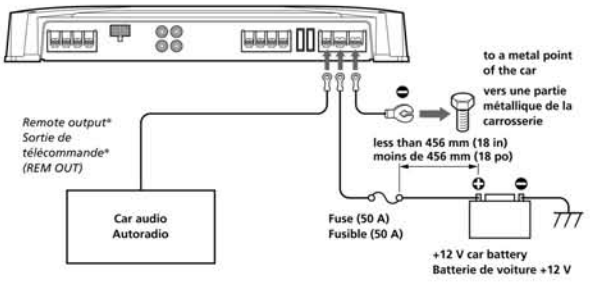
Make the terminal connections as illustrated below.
Procédez aux connexions des bornes comme illustré ci-dessous.



Pass the wires through the cap, connect the wires, then cover the terminals with the cap.
Note
When you tighten the screw, be careful not to apply too much torque as doing so may damage the screw.*
** The torque value should be less than 1 N•m.*

Faites passer les fils par le cache, raccordez les fils, puis recouvrez les bornes avec le cache.
Remarque
Lorsque vous vissez la vis, faites attention à ne pas appliquer une trop grande force, car cela pourrait endommager la vis.*
** Le couple de torsion doit être inférieur à 1 N•m.*

Power Connection Wires
Câbles d'alimentation



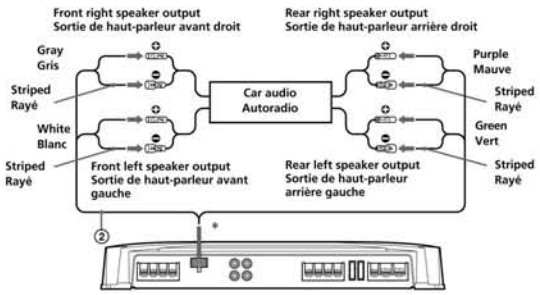
** If you have the factory original or some other car audio without a remote out-put on the amplifier, connect the remote input terminal (REMOTE) to the accessory power supply.*
** Si vous disposez du modèle d'origine ou d'un autre autoradio dont l'amplificateur ne comporte pas de sortie de télécommande, raccordez la borne d'entrée de télécommande (REMOTE) à la prise d'alimentation accessoires.*

Notes on the power supply
- *Connect the +12 V power supply wire only after all the other wires have been connected.*
- ***Be sure to connect the ground wire of the unit securely to a metal point of the car. A loose connection may cause a malfunction of the amplifier.***
- *Be sure to connect the remote control wire of the car audio to the remote terminal.*
- *When using a car audio without a remote output on the amplifier, connect the remote input terminal (REMOTE) to the accessory power supply.*
- *Use the power supply wire with a fuse attached (50 A).*
- *All power wires connected to the positive battery post should be fused within 456 mm (18 in) of the battery post, and before they pass through any metal.*
- *Make sure that the wires to be connected to the **+12 V** and **GND** terminals of this unit are at least 10-Gauge (AWG-10) or have a sectional area of more than 5 mm² (⁷/₁₀ in.²).*

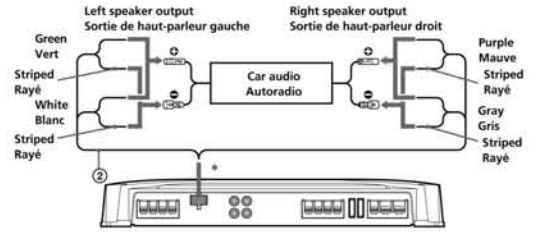
Remarques sur l'alimentation électrique
- *Raccordez le câble d'alimentation +12 V uniquement après avoir réalisé toutes les autres connexions.*
- ***Raccordez correctement le fil de masse à une partie métallique de la voiture. Une connexion lâche peut provoquer un dysfonctionnement de l'amplificateur.***
- *Veillez à raccorder le fil de télécommande de l'autoradio à la borne de télécommande.*
- *Si vous utilisez un autoradio dont l'amplificateur ne comporte pas de sortie de télécommande, raccordez la borne d'entrée de la télécommande (REMOTE) à la prise d'alimentation accessoires.*
- *Utilisez un câble d'alimentation muni d'un fusible (50 A).*
- *Tous les fils électriques raccordés au support de batterie positif doivent être protégés par un fusible à une distance maximum de 456 mm (18 po) du support de batterie et avant de passer dans une partie métallique quelconque.*
- *Assurez-vous que les câbles à raccorder aux bornes **+12V** et **GND** de cet appareil sont d'un calibre d'au moins 10 (AWG-10) ou d'une section supérieure à 5 mm² (⁷/₁₀ po²).*

Input Connections/Connexions d'entrée

A High Level Input Connection (with Speaker Connection 1, 2 or 3) Connexion à l'entrée de haut niveau (avec connexion de haut-parleur 1, 2 ou 3)



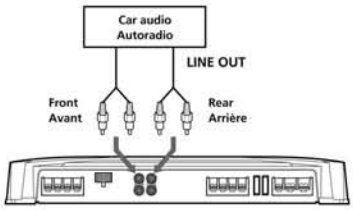
B High Level Input Connection (with Speaker Connection 2 or 3) Connexion à l'entrée de haut niveau (avec connexion de haut-parleur 2 ou 3)



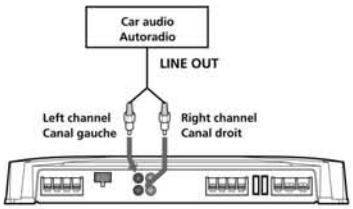
Note
Make sure that the right speaker output from the car audio is connected to the connector marked "REAR" on the unit.

Remarque
Assurez-vous que la sortie du haut-parleur droit de l'autoradio est raccordée au connecteur portant l'indication « REAR » sur l'appareil.

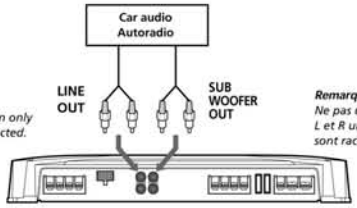
C Line Input Connection (with Speaker Connection 1, 2 or 3) Connexion d'entrée de ligne (avec connexion de haut-parleur 1, 2 ou 3)



D Line Input Connection (with Speaker Connection 1, 2 or 3) Connexion d'entrée de ligne (avec connexion de haut-parleur 1, 2 ou 3)



E Line Input Connection (with Speaker Connection 2 or 3) Connexion d'entrée de ligne (avec connexion de haut-parleur 2 ou 3)



Note
Do not use when only L and R is connected.

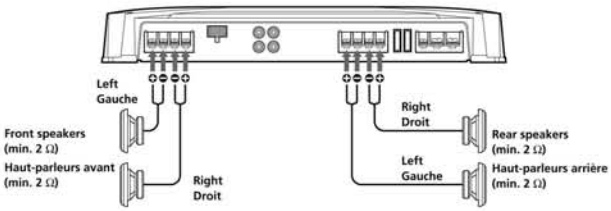
Remarque
Ne pas utiliser lorsque L et R uniquement sont raccordés.

Speaker Connections/Raccordement de haut-parleurs

1 4-Speaker System (with Input Connection A, C or D) Système à 4 haut-parleurs (avec connexion d'entrée A, C ou D)

For details on the settings of switches and controls, refer to "Location and Function of Controls."

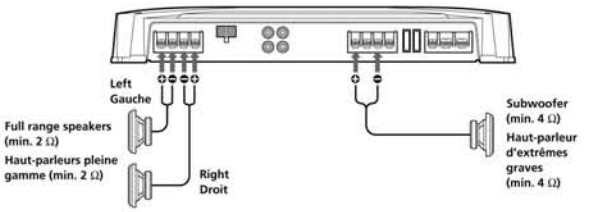
Pour plus de détails sur les réglages des commutateurs et commandes, reportez-vous à « Emplacement et fonction des commandes ».



2 3-Speaker System (with Input Connection A, B, C, D or E) Système à 3 haut-parleurs (avec connexion d'entrée A, B, C, D ou E)

For details on the settings of switches and controls, refer to "Location and Function of Controls."

Pour plus de détails sur les réglages des commutateurs et commandes, reportez-vous à « Emplacement et fonction des commandes ».



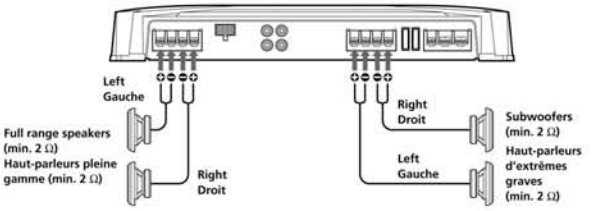
Notes
- *In this system, the volume of the subwoofer will be controlled by the car audio fader control.*
- *In this system, the output signals to the subwoofer are a combination of both the REAR L and R INPUT jacks or the REAR high level input connector signals.*

Remarques
- *Dans ce système, le volume du haut-parleur d'extrêmes graves est contrôlé par la commande de balance avant/arrière de l'autoradio.*
- *Sur cet appareil, les signaux transmis vers le subwoofer sont constitués des signaux des prises REAR L et R INPUT.*

3 2-Way System (with Input Connection A, B, C, D or E) Système à 2 voies (avec connexion d'entrée A, B, C, D ou E)

For details on the settings of switches and controls, refer to "Location and Function of Controls."

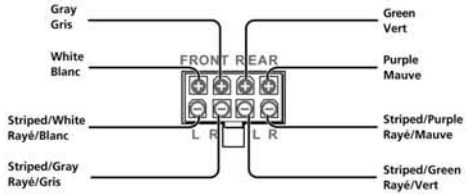
Pour plus de détails sur les réglages des commutateurs et commandes, reportez-vous à « Emplacement et fonction des commandes ».



Note
In this system, the volume of the subwoofers will be controlled by the car audio fader control.

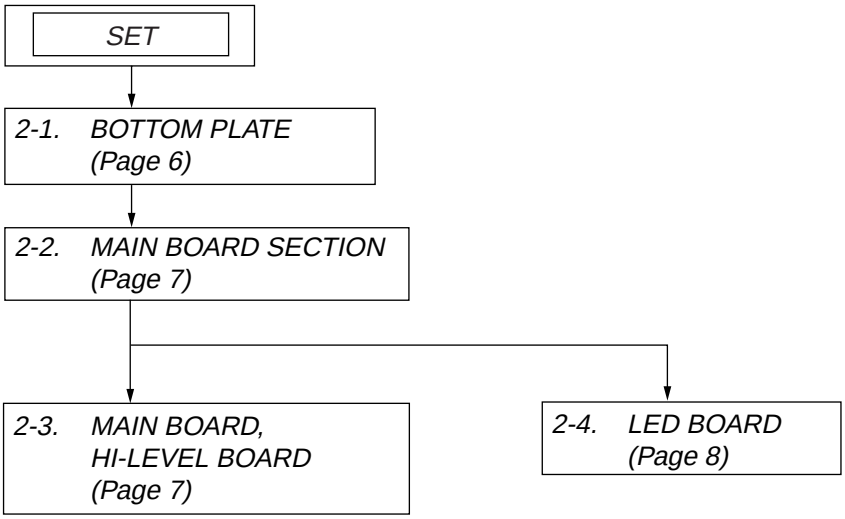
Remarque
Dans ce système, le volume des haut-parleurs d'extrêmes graves est contrôlé par la commande de balance avant/arrière de l'autoradio.

*** High Level Input Connector**
*** Connecteur d'entrée à haut niveau**



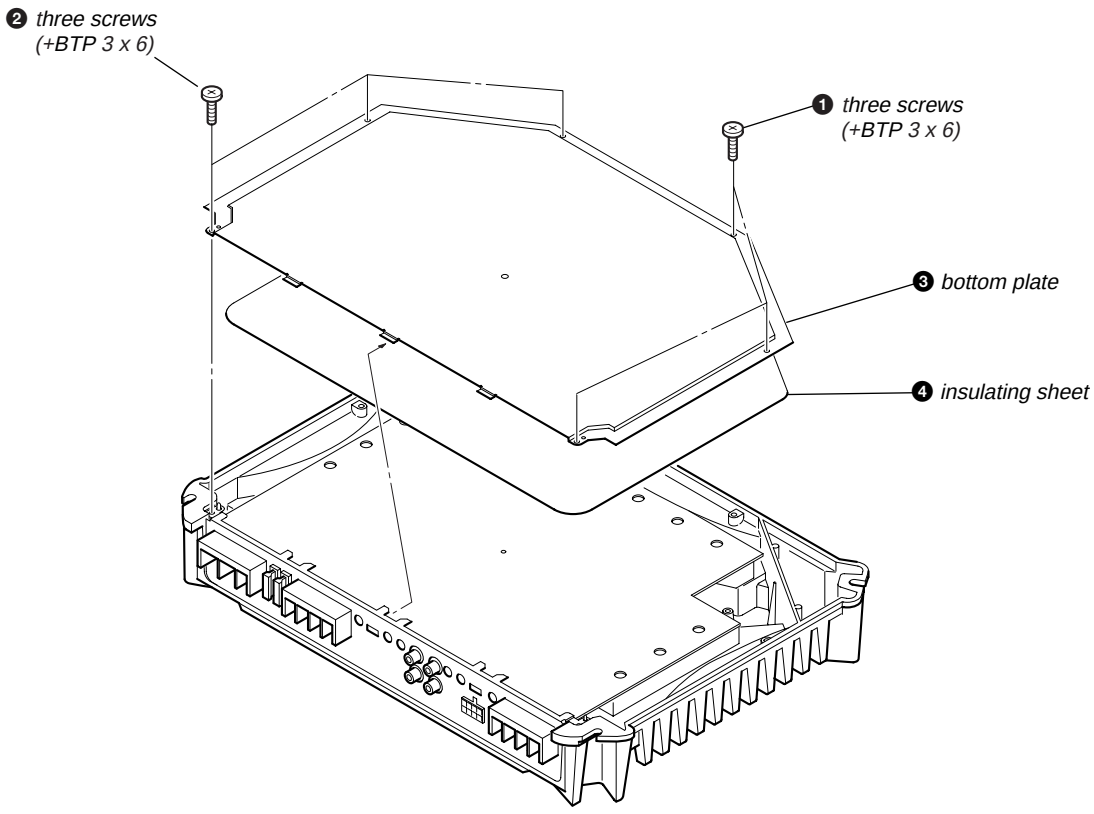
SECTION 2
DISASSEMBLY

Note : This set can be disassemble according to the following sequence.

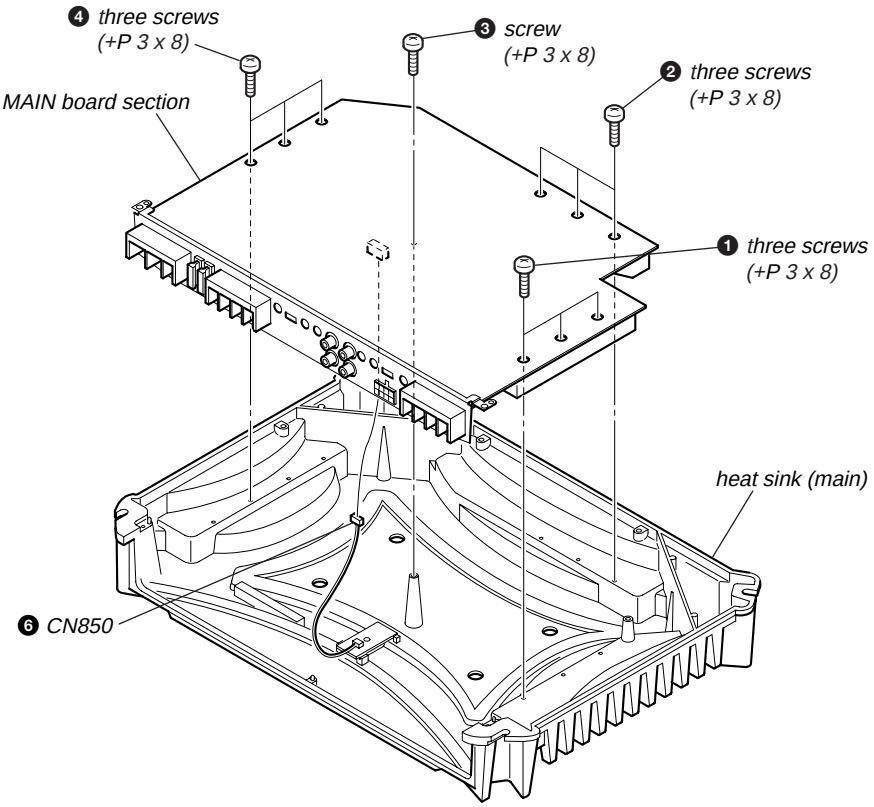


Note : Follow the disassembly procedure in the numerical order given.

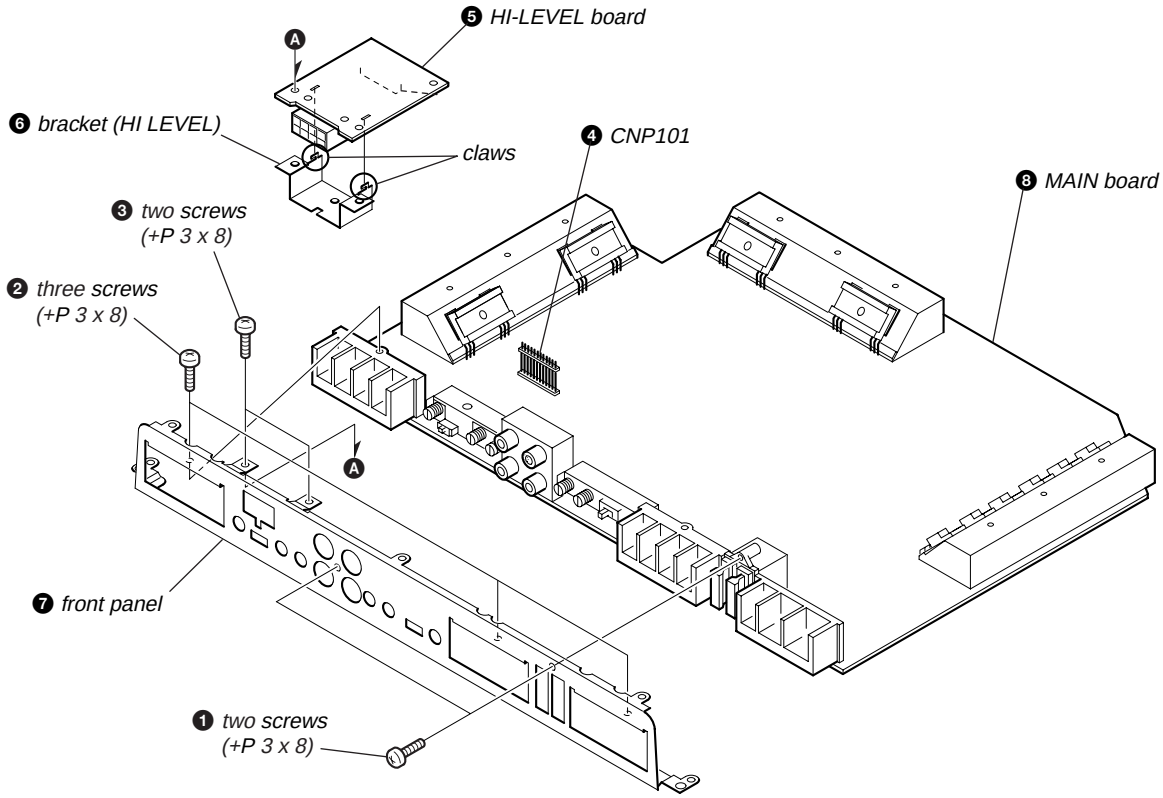
2-1. BOTTOM PLATE



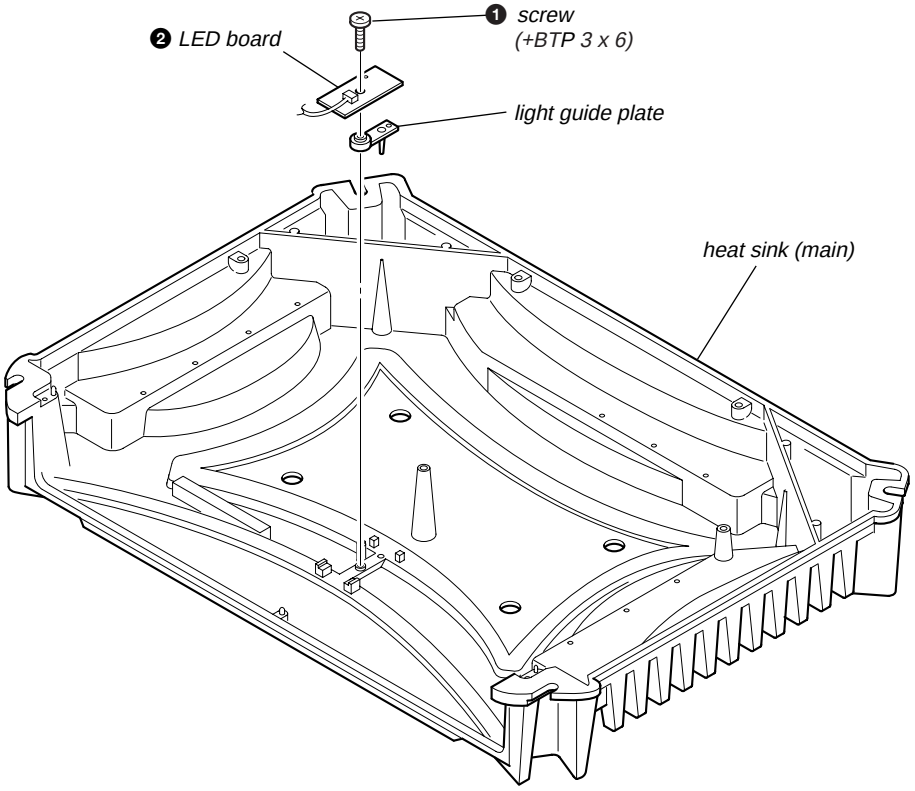
2-2. MAIN BOARD SECTION



2-3. MAIN BOARD, HI-LEVEL BOARD



2-4. LED BOARD

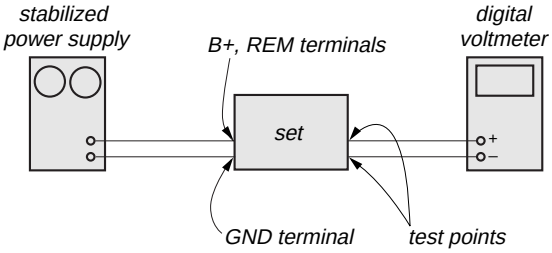


SECTION 3
ELECTRICAL ADJUSTMENT

Bias Adjustment

Note : The Bias adjustment should be performed only if any of Q109 and Q110 for RV104, Q209 and Q210 for RV204, Q309 and Q310 for RV304, and Q409 and Q410 for RV404 are replaced.

Setting :



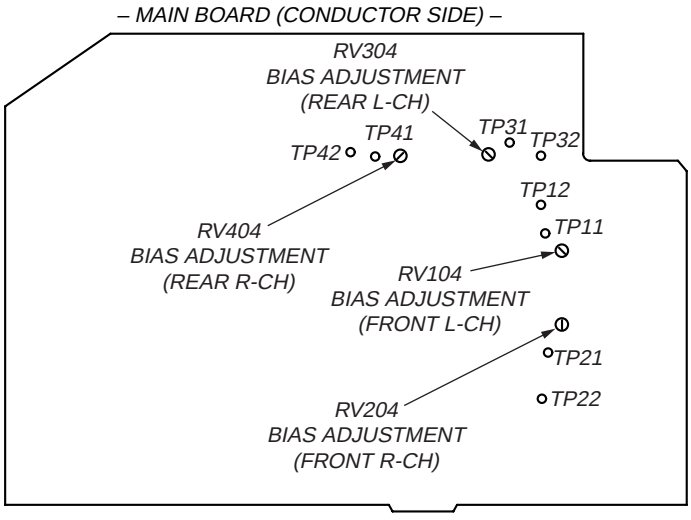
Procedure:

1. Rotate variable resistors RV104 (FRONT L-CH), RV204 (FRONT R-CH), RV304 (REAR L-CH) and RV404 (REAR R-CH) full clockwise as seen from the pattern side to minimize the bias current.
2. The input signal is with no signal.
3. Connect the stabilized power supply between B+ and REM terminals and gradually increase the voltage to 14.4 V while checking for any abnormal current.
4. Adjust RV104 (FRONT L-CH), RV204 (FRONT R-CH), RV304 (REAR L-CH) and RV404 (REAR R-CH) so that the digital voltmeter connected between the respective test points reads 6±1 mV.

RV Ref. No.	Test points
RV104	TP11 and TP12
RV204	TP21 and TP22
RV304	TP31 and TP32
RV404	TP41 and TP42

5. After this adjustment, verify that the current value of the stabilized power supply is 1.4 to 1.8 A.

Adjustment Location :



SECTION 4
DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

for schematic diagram:
Note:

- All capacitors are in µF unless otherwise noted. (p: pF) 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- : nonflammable resistor.
- : panel designation.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- : B+ Line.
- : B– Line.
- : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from +12V and REM terminals.
- Voltage and waveform are dc with respect to ground under no-signal condition.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : AUDIO

for printed wiring boards:
Note:

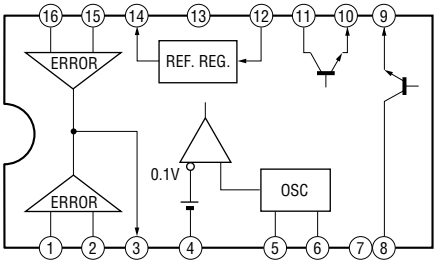
- : parts extracted from the component side.
- : Pattern from the side which enables seeing.

• Semiconductor Location (MAIN SECTION)

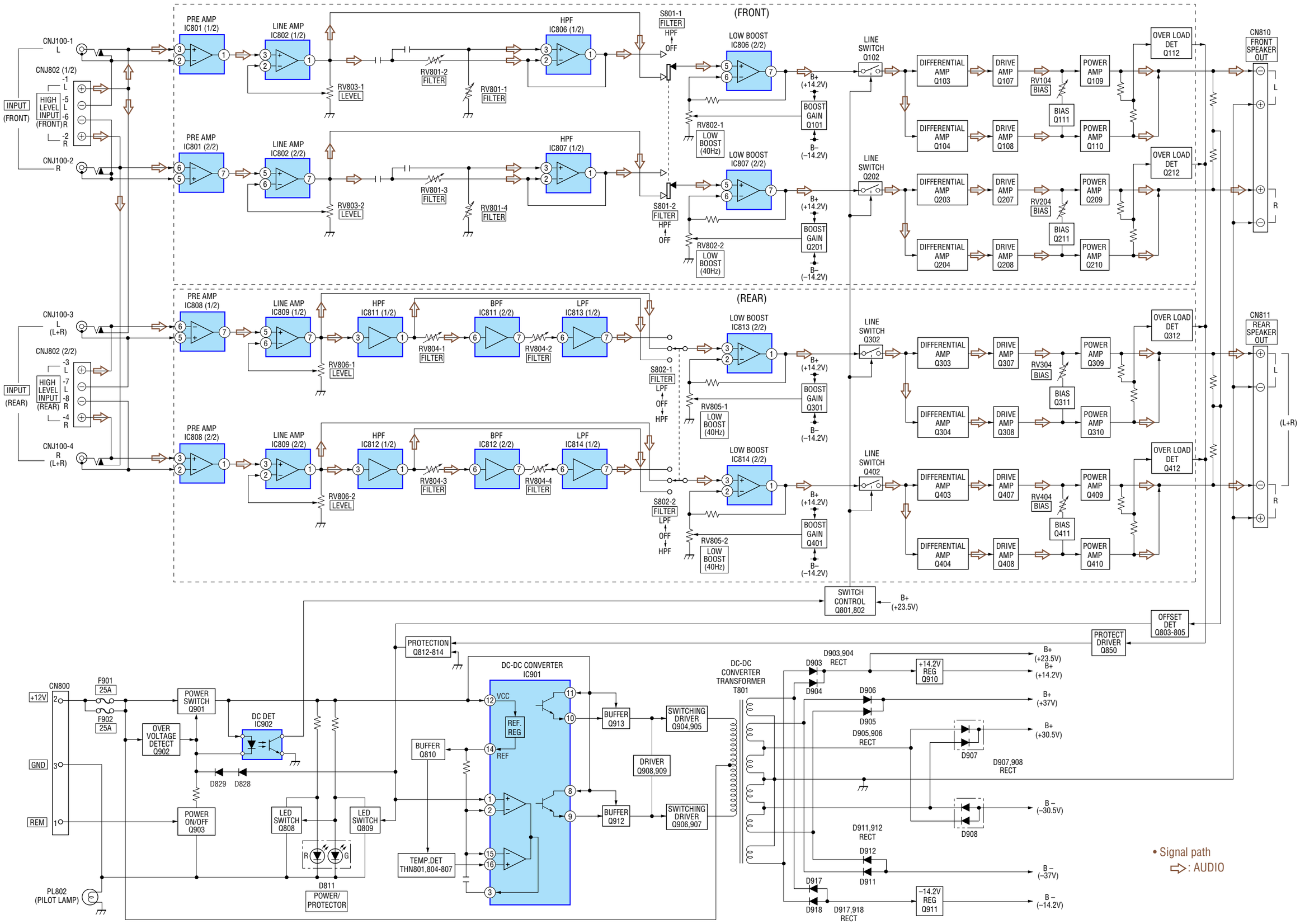
Ref. No.	Location	Ref. No.	Location
D101	D-10	Q201	H-12
D141	E-12	Q202	G-10
D201	G-10	Q203	F-11
D241	F-12	Q204	F-11
D301	D-10	Q207	F-11
D341	C-10	Q208	F-11
D401	D-8	Q209	G-12
D441	C-9	Q210	G-12
D801	E-8	Q211	F-12
D802	E-8	Q212	G-10
D805	D-8	Q301	G-6
D824	D-8	Q302	D-10
D825	D-8	Q303	C-10
D826	D-8	Q304	C-10
D827	D-8	Q307	C-10
D828	C-7	Q308	D-10
D829	C-7	Q309	B-10
D901	H-2	Q310	B-11
D902	H-2	Q311	B-10
D903	E-6	Q312	D-11
D904	E-6	Q401	H-6
D905	D-6	Q402	D-9
D906	D-6	Q403	C-9
D907	B-2	Q404	C-9
D908	C-2	Q407	C-9
D911	D-6	Q408	C-9
D912	E-6	Q409	B-8
D913	F-8	Q410	B-8
D914	F-8	Q411	B-9
D917	E-6	Q412	D-8
D918	E-5	Q801	E-8
		Q802	E-8
IC801	H-9	Q803	A-5
IC802	I-10	Q804	B-5
IC806	H-10	Q805	A-4
IC807	H-11	Q808	F-6
IC808	H-8	Q809	F-6
IC809	H-8	Q810	C-7
IC811	G-7	Q812	B-4
IC812	H-7	Q813	A-4
IC813	G-7	Q814	A-3
IC814	H-6	Q850	B-4
IC901	G-1	Q901	H-1
IC902	E-7	Q902	H-2
		Q903	H-2
Q101	H-10	Q904	F-2
Q102	E-11	Q905	E-2
Q103	E-11	Q906	E-2
Q104	E-11	Q907	D-2
Q107	E-11	Q908	E-2
Q108	E-11	Q909	E-2
Q109	E-12	Q910	F-8
Q110	D-12	Q911	F-8
Q111	E-12	Q912	E-2
Q112	D-10	Q913	E-2

4-1. IC BLOCK DIAGRAM

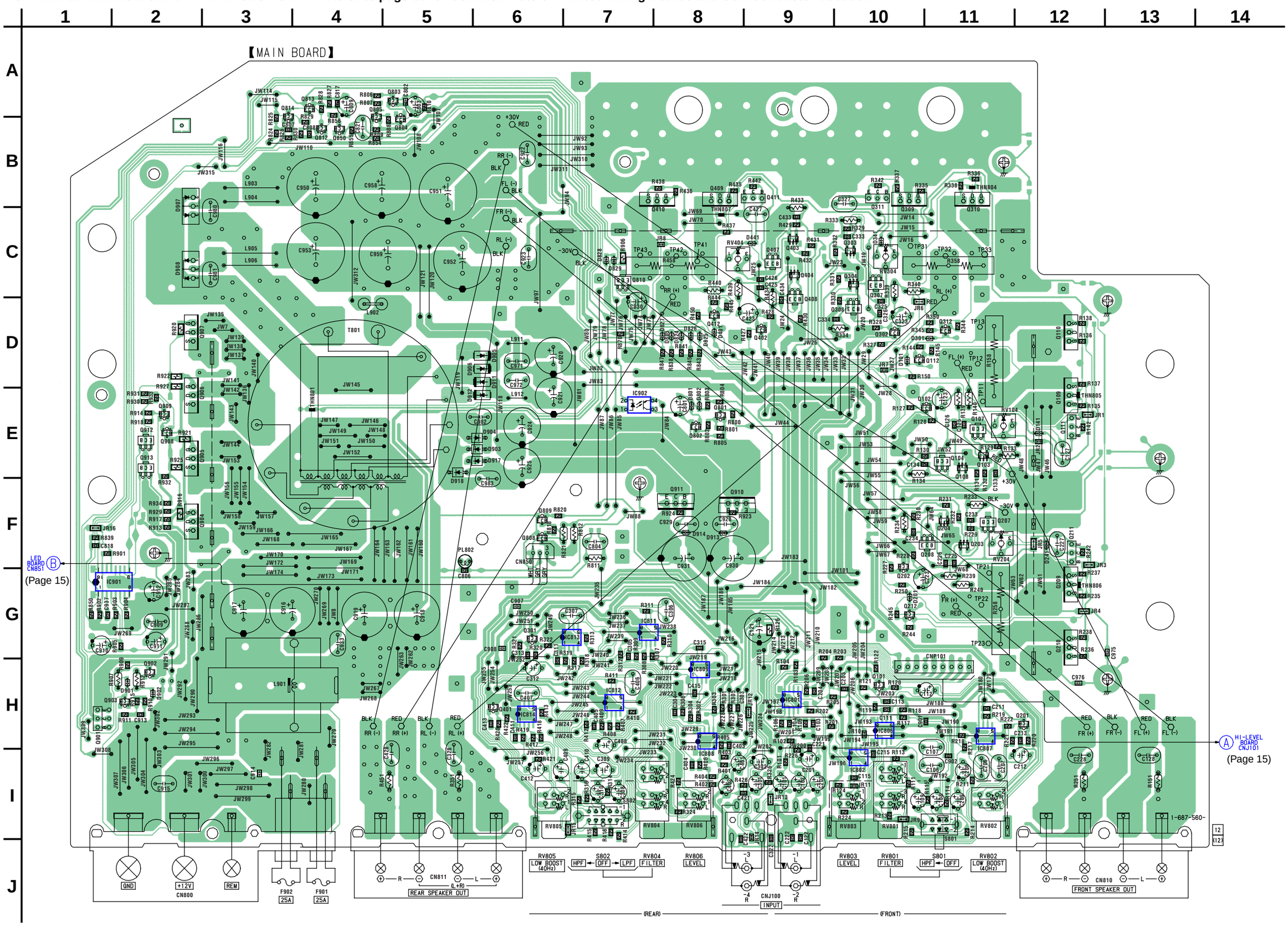
IC901 TL594INSR



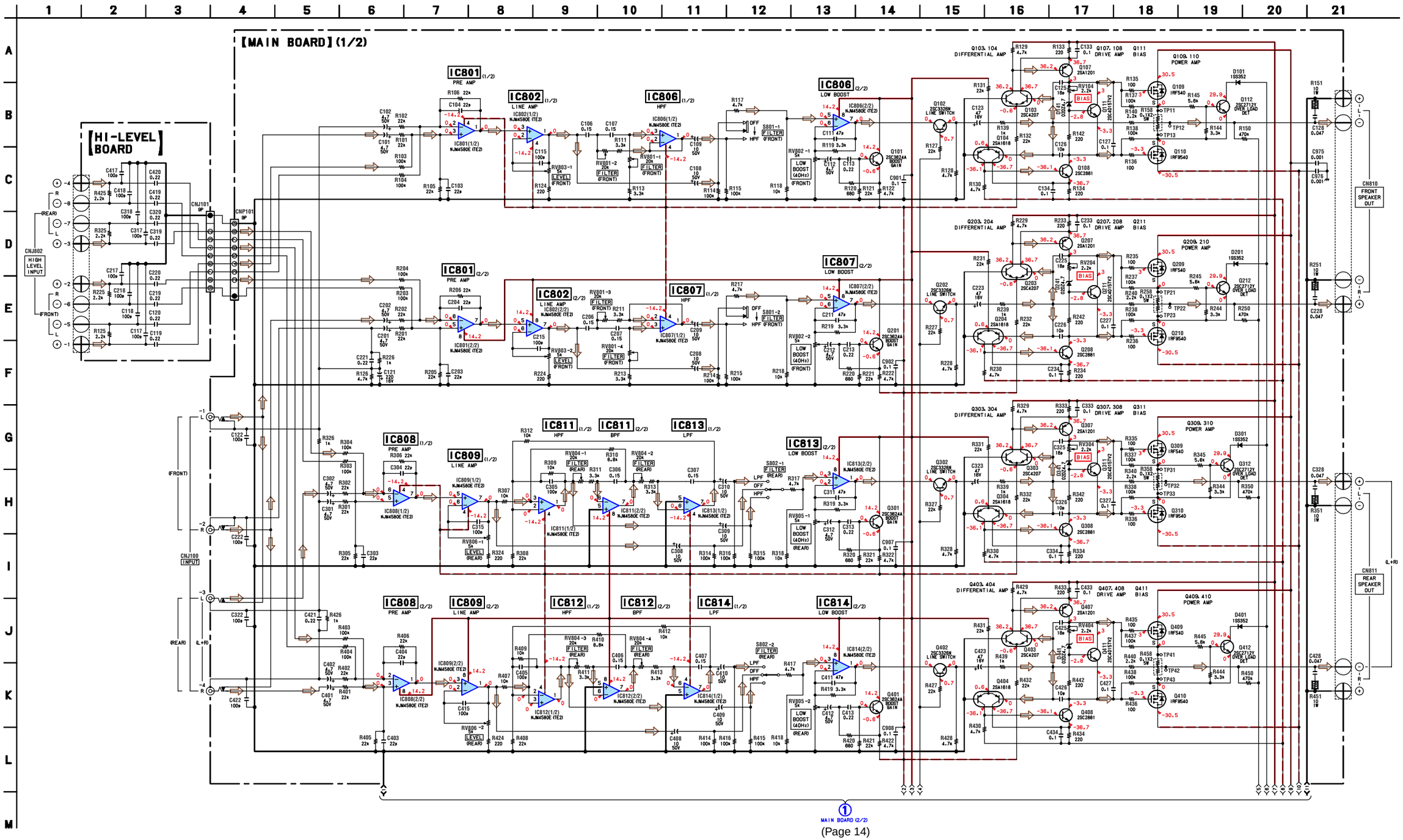
4-2. BLOCK DIAGRAM



4-3. PRINTED WIRING BOARD — MAIN SECTION — • Refer to page 10 for Common Note on Printed Wiring Boards and Semiconductor Location.

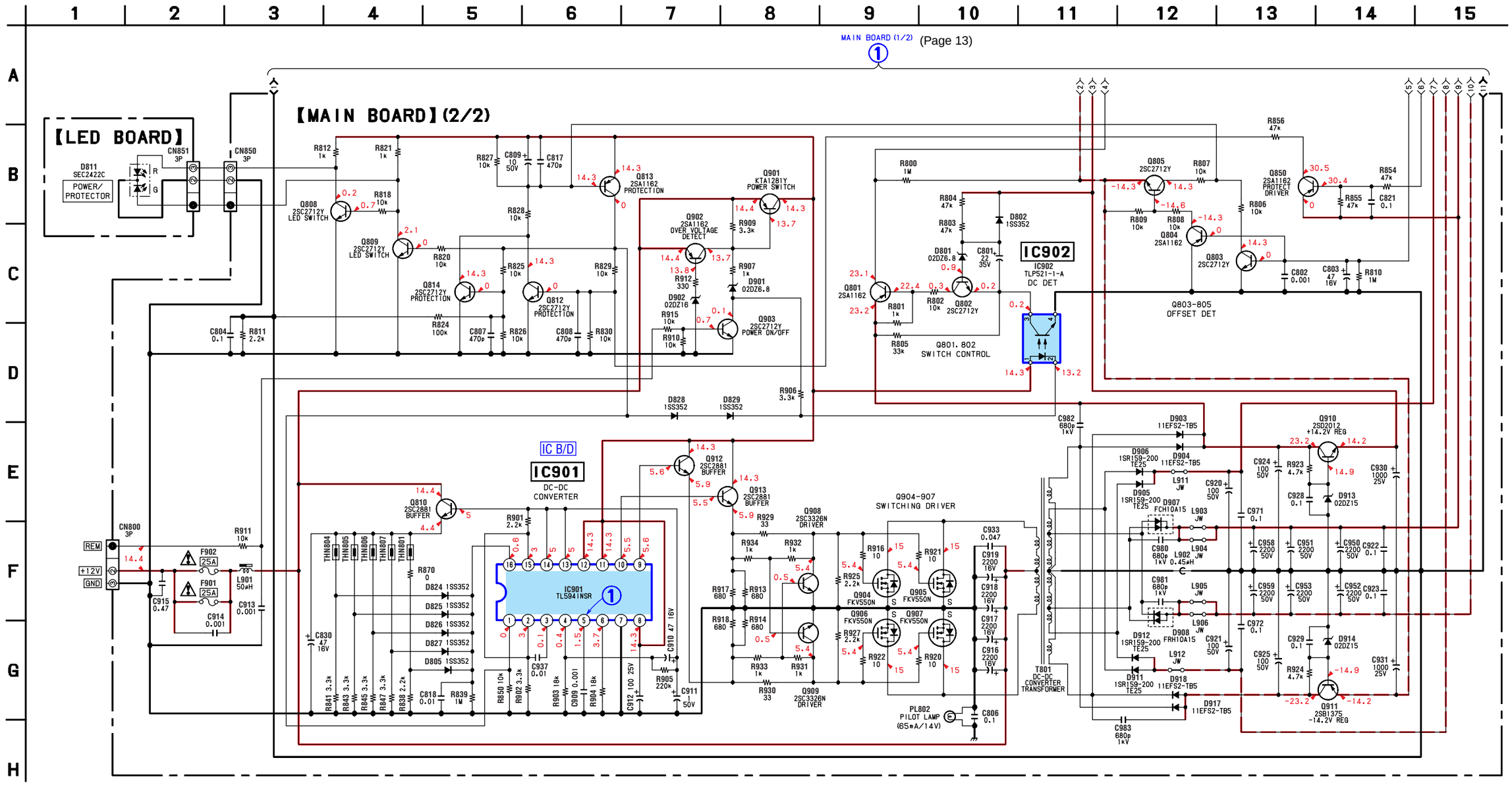


4-4. SCHEMATIC DIAGRAM — MAIN SECTION (1/2) — • Refer to page 10 for Common Note on Schematic Diagrams.



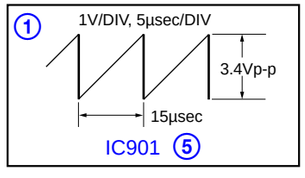
(Page 14)

4-5. SCHEMATIC DIAGRAM — MAIN SECTION (2/2) — • Refer to page 10 for Common Note on Schematic Diagrams and IC Block Diagram.



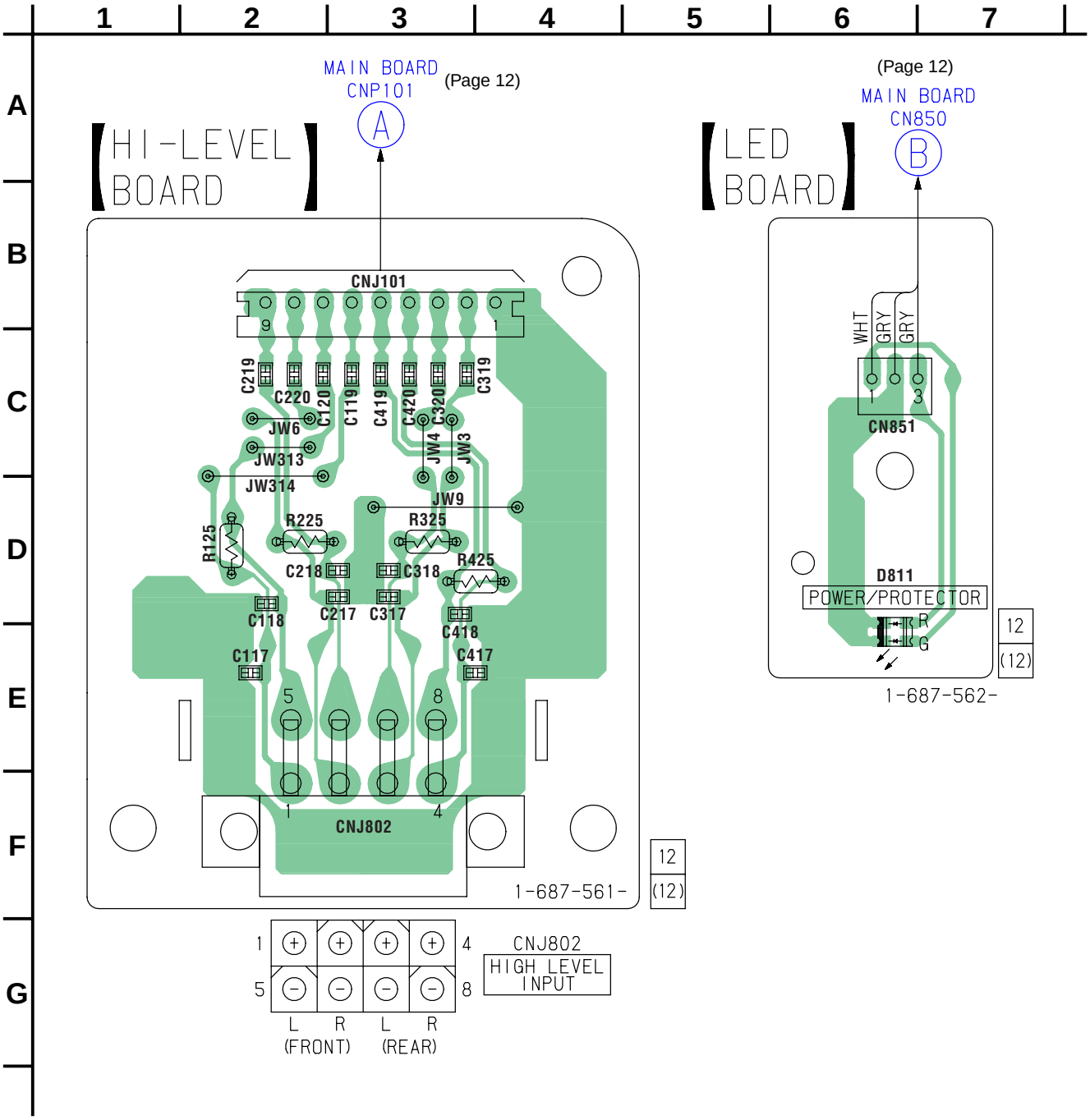
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

• Waveform



4-6. PRINTED WIRING BOARDS — HIGH-LEVEL, LED SECTION —

• Refer to page 10 for Common Note on Printed Wiring Boards.



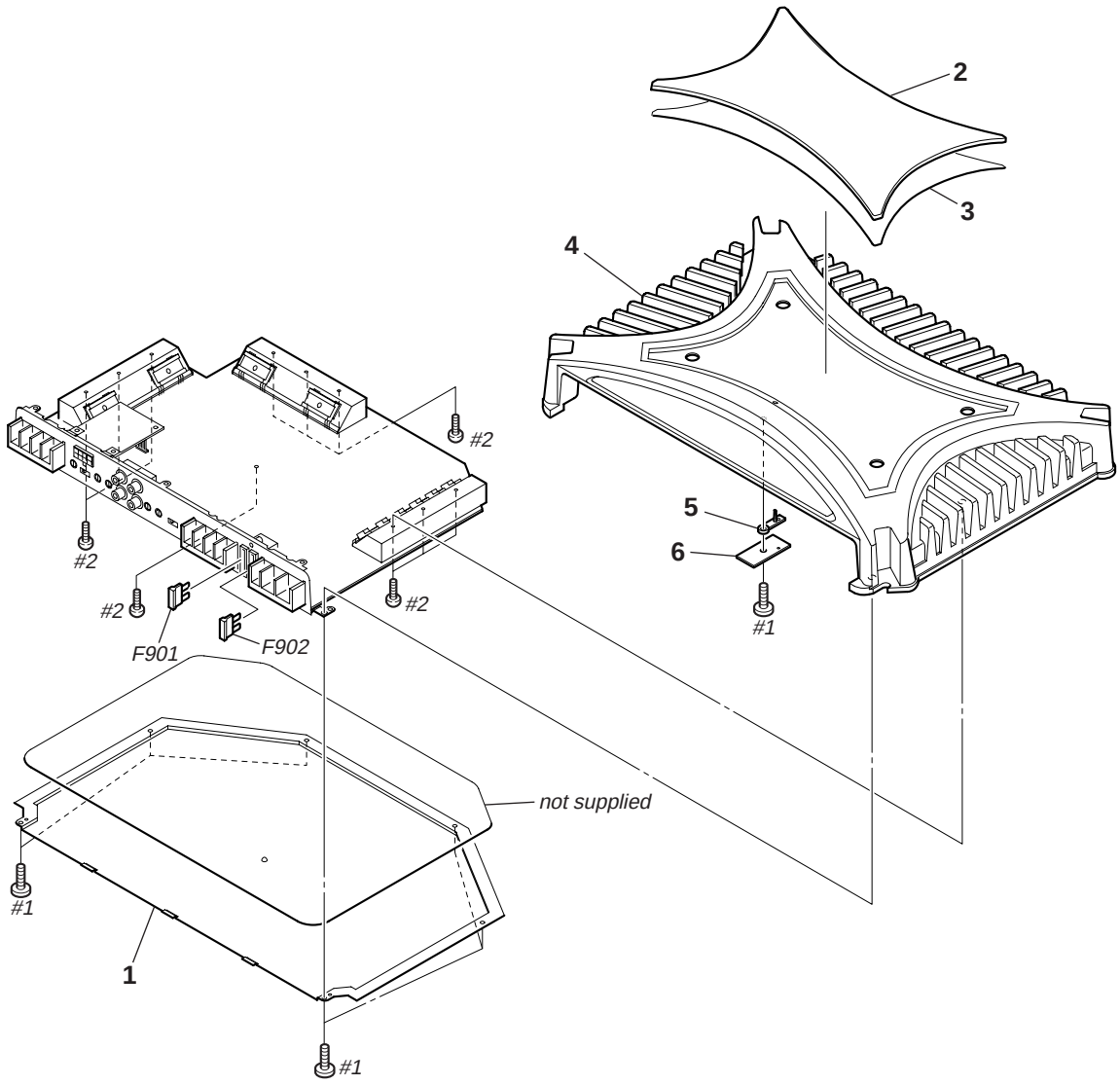
SECTION 5
EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Accessories are given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

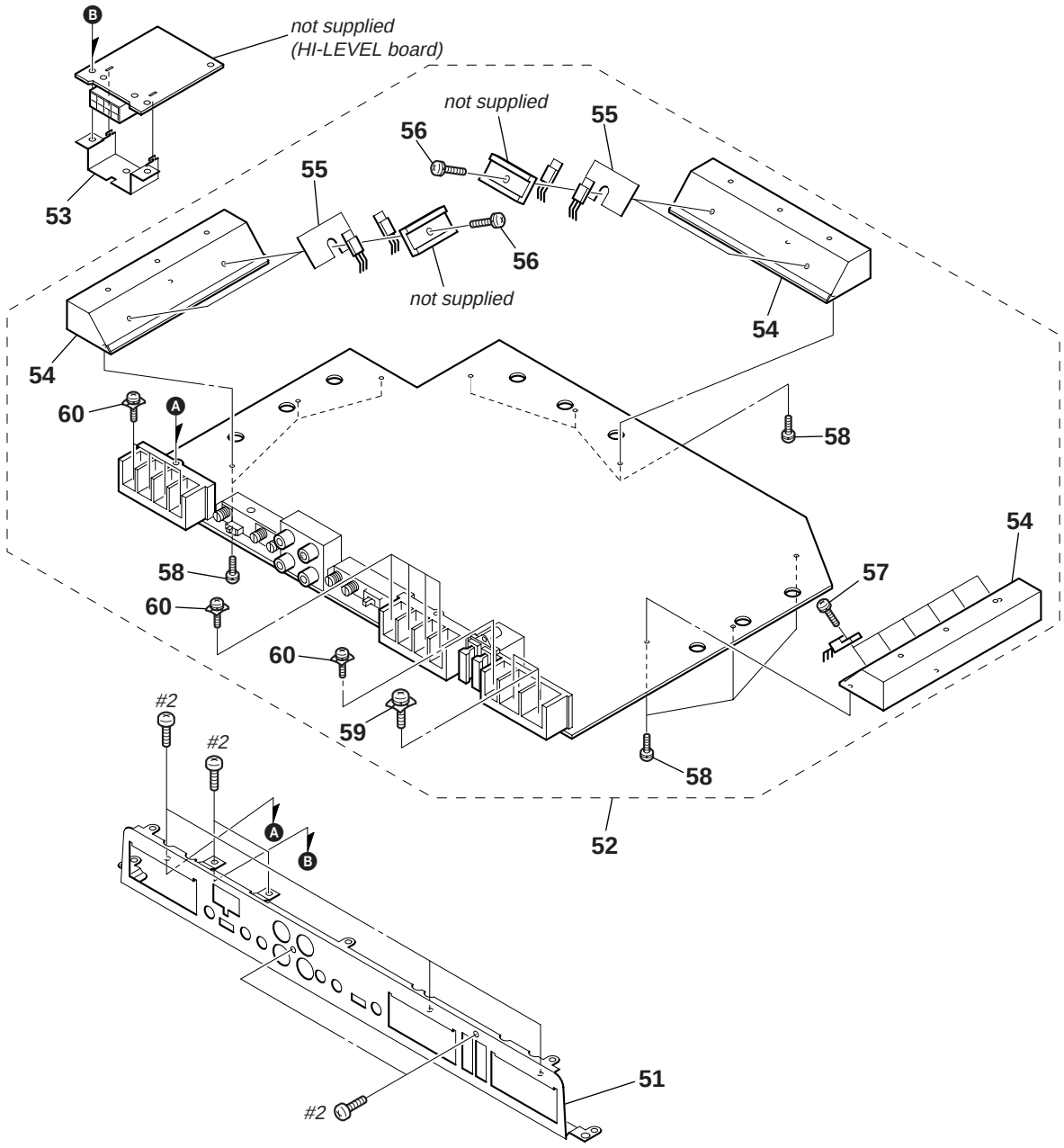
5-1. HEAT SINK (MAIN) SECTION



Ref. No.	Part No.	Description	Remark
1	3-262-168-01	PLATE, BOTTOM	
2	3-262-165-11	PLATE, ORNAMENTAL	
3	3-262-166-01	SHEET, ADHESIVE, DOUBLE-FACE	
4	3-262-162-01	HEAT SINK (MAIN)	
5	3-262-167-01	PLATE, LIGHT GUIDE	

Ref. No.	Part No.	Description	Remark
6	1-687-562-12	LED BOARD	
⚠F901	1-576-256-11	FUSE (BLADE TYPE) (AUTO FUSE) (25A)	
⚠F902	1-576-256-11	FUSE (BLADE TYPE) (AUTO FUSE) (25A)	
#1	7-685-545-14	SCREW +BTP 3X6 TYPE2 N-S	
#2	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT	

5-2. MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark
51	3-262-164-01	PANEL, FRONT	
52	A-3274-684-A	MAIN BOARD, COMPLETE	
53	3-249-924-01	BRACKET (HIGH LEVEL)	
54	3-249-785-01	HEAT SINK (SUB OUTPUT)	
55	3-238-413-01	SHEET (TR), INSULATING	
56	3-225-183-21	SCREW (+PSW.TT.3XL)	
57	3-225-183-31	SCREW (+PSW.TT.3XL)	
58	3-225-184-11	SCREW (+PS.TT.3XL)	
59	3-253-537-01	SCREW (M5X11)	
60	3-912-431-01	SCREW (+–P)	
#2	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT	

HI-LEVEL LED MAIN

SECTION 6
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ, for example:
  uA.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
		HI-LEVEL BOARD			
		**********			
	3-249-924-01	BRACKET (HIGH LEVEL)			
	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT			
		< CAPACITOR >			
C117	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C118	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C119	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C120	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C217	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C218	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C219	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C220	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C317	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C318	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C319	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C320	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C417	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C418	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C419	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C420	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
		< CONNECTOR >			
CNJ101	1-784-916-11	CONNECTOR, BOARD TO BOARD 9P			
CNJ802	1-580-283-11	PIN, CONNECTOR (PC BOARD) 8P (HIGH LEVEL INPUT)			
		< RESISTOR >			
R125	1-249-421-11	CARBON	2.2K	5%	1/4W
R225	1-249-421-11	CARBON	2.2K	5%	1/4W
R325	1-249-421-11	CARBON	2.2K	5%	1/4W
R425	1-249-421-11	CARBON	2.2K	5%	1/4W
**********					
	1-687-562-12	LED BOARD			
		**********			
		< DIODE >			
D811	8-719-045-51	LED SEC2422C (POWER/PROTECTOR)			
**********					

Ref. No.	Part No.	Description			Remark
	A-3274-684-A	MAIN BOARD, COMPLETE			
		**********			
	3-225-183-21	SCREW (+PSW.TT.3XL)			
	3-225-183-31	SCREW (+PSW.TT.3XL)			
	3-225-184-11	SCREW (+PS.TT.3XL)			
	3-238-413-01	SHEET (TR), INSULATING			
	3-249-785-01	HEAT SINK (SUB OUTPUT)			
	3-253-537-01	SCREW (M5X11)			
	3-912-431-01	SCREW (+–P)			
	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT			
		< CAPACITOR >			
C101	1-126-794-11	ELECT	4.7uF	20%	50V
C102	1-126-794-11	ELECT	4.7uF	20%	50V
C103	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C104	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C106	1-136-167-00	FILM	0.15uF	5%	50V
C107	1-136-167-00	FILM	0.15uF	5%	50V
C108	1-126-795-11	ELECT	10uF	20%	50V
C109	1-126-795-11	ELECT	10uF	20%	50V
C111	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C112	1-126-794-11	ELECT	4.7uF	20%	50V
C113	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C115	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C121	1-128-499-11	ELECT	220uF	20%	16V
C122	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C123	1-126-786-11	ELECT	47uF	20%	16V
C125	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C126	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C127	1-136-165-00	FILM	0.1uF	5%	50V
C128	1-136-161-00	FILM	0.047uF	5%	50V
C133	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C134	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C201	1-126-794-11	ELECT	4.7uF	20%	50V
C202	1-126-794-11	ELECT	4.7uF	20%	50V
C203	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C204	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C206	1-136-167-00	FILM	0.15uF	5%	50V
C207	1-136-167-00	FILM	0.15uF	5%	50V
C208	1-126-795-11	ELECT	10uF	20%	50V
C209	1-126-795-11	ELECT	10uF	20%	50V
C211	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C212	1-126-794-11	ELECT	4.7uF	20%	50V
C213	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V

Ref. No.	Part No.	Description			Remark
C215	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C221	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C222	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C223	1-126-786-11	ELECT	47uF	20%	16V
C225	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C226	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C227	1-136-165-00	FILM	0.1uF	5%	50V
C228	1-136-161-00	FILM	0.047uF	5%	50V
C233	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C234	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C301	1-126-794-11	ELECT	4.7uF	20%	50V
C302	1-126-794-11	ELECT	4.7uF	20%	50V
C303	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C304	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C305	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C306	1-136-167-00	FILM	0.15uF	5%	50V
C307	1-136-167-00	FILM	0.15uF	5%	50V
C308	1-126-795-11	ELECT	10uF	20%	50V
C309	1-126-795-11	ELECT	10uF	20%	50V
C310	1-126-795-11	ELECT	10uF	20%	50V
C311	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C312	1-126-794-11	ELECT	4.7uF	20%	50V
C313	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C315	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C322	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C323	1-126-786-11	ELECT	47uF	20%	16V
C325	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C326	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C327	1-136-165-00	FILM	0.1uF	5%	50V
C328	1-136-161-00	FILM	0.047uF	5%	50V
C333	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C334	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C401	1-126-794-11	ELECT	4.7uF	20%	50V
C402	1-126-794-11	ELECT	4.7uF	20%	50V
C403	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C404	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C405	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C406	1-136-167-00	FILM	0.15uF	5%	50V
C407	1-136-167-00	FILM	0.15uF	5%	50V
C408	1-126-795-11	ELECT	10uF	20%	50V
C409	1-126-795-11	ELECT	10uF	20%	50V
C410	1-126-795-11	ELECT	10uF	20%	50V
C411	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C412	1-126-794-11	ELECT	4.7uF	20%	50V
C413	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C415	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C421	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C422	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C423	1-126-786-11	ELECT	47uF	20%	16V
C425	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C426	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C427	1-136-165-00	FILM	0.1uF	5%	50V
C428	1-136-161-00	FILM	0.047uF	5%	50V
C433	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C434	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C801	1-126-796-11	ELECT	22uF	20%	35V
C802	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C803	1-126-786-11	ELECT	47uF	20%	16V
C804	1-136-165-00	FILM	0.1uF	5%	50V
C806	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C807	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C808	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C809	1-126-964-11	ELECT	10uF	20%	50V
C817	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C818	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C821	1-136-165-00	FILM	0.1uF	5%	50V
C830	1-126-786-11	ELECT	47uF	20%	16V
C901	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C902	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C907	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C908	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C909	1-130-471-00	MYLAR	0.001uF	5%	50V
C910	1-126-786-11	ELECT	47uF	20%	16V
C911	1-126-960-11	ELECT	1uF	20%	50V
C912	1-104-665-11	ELECT	100uF	20%	25V
C913	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C914	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C915	1-137-194-81	FILM	0.47uF	5%	50V
C916	1-131-731-11	ELECT	2200uF	20%	16V
C917	1-131-731-11	ELECT	2200uF	20%	16V
C918	1-131-731-11	ELECT	2200uF	20%	16V
C919	1-131-731-11	ELECT	2200uF	20%	16V
C920	1-126-968-11	ELECT	100uF	20%	50V
C921	1-126-968-11	ELECT	100uF	20%	50V
C922	1-136-165-00	FILM	0.1uF	5%	50V
C923	1-136-165-00	FILM	0.1uF	5%	50V
C924	1-126-968-11	ELECT	100uF	20%	50V
C925	1-126-968-11	ELECT	100uF	20%	50V
C928	1-136-165-00	FILM	0.1uF	5%	50V
C929	1-136-165-00	FILM	0.1uF	5%	50V
C930	1-126-942-61	ELECT	1000uF	20%	25V
C931	1-126-942-61	ELECT	1000uF	20%	25V
C933	1-136-161-00	FILM	0.047uF	5%	50V
C937	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C950	1-100-199-31	ELECT	2200uF	20%	50V
C951	1-100-199-31	ELECT	2200uF	20%	50V
C952	1-100-199-31	ELECT	2200uF	20%	50V
C953	1-100-199-31	ELECT	2200uF	20%	50V
C958	1-100-199-31	ELECT	2200uF	20%	50V
C959	1-100-199-31	ELECT	2200uF	20%	50V
C971	1-136-165-00	FILM	0.1uF	5%	50V
C972	1-136-165-00	FILM	0.1uF	5%	50V
C975	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C976	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C980	1-125-969-11	CERAMIC	680PF	10%	1KV
C981	1-125-969-11	CERAMIC	680PF	10%	1KV
C982	1-125-969-11	CERAMIC	680PF	10%	1KV
C983	1-125-969-11	CERAMIC	680PF	10%	1KV

< TERMINAL BOARD >

CN800	1-694-983-11	TERMINAL BOARD (3P+FUSE) (REM,+12V,GND,25A)
CN810	1-694-985-11	TERMINAL BOARD (4P) (FRONT SPEAKER OUT)
CN811	1-694-985-11	TERMINAL BOARD (4P) (REAR SPEAKER OUT)

MAIN

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN850	1-506-468-11	PIN, CONNECTOR 3P	
CNP101	1-784-917-11	PIN, CONNECTOR (PWB) 9P	
		< JACK >	
CNJ100	1-779-078-41	JACK, PIN 4P (INPUT)	
		< DIODE >	
D101	8-719-016-74	DIODE 1SS352	
D141	8-719-017-03	DIODE 02DZ4.7-TPH3	
D201	8-719-016-74	DIODE 1SS352	
D241	8-719-017-03	DIODE 02DZ4.7-TPH3	
D301	8-719-016-74	DIODE 1SS352	
D341	8-719-017-03	DIODE 02DZ4.7-TPH3	
D401	8-719-016-74	DIODE 1SS352	
D441	8-719-017-03	DIODE 02DZ4.7-TPH3	
D801	8-719-065-18	DIODE 02DZ6.8-Y(TPH3)	
D802	8-719-016-74	DIODE 1SS352	
D805	8-719-016-74	DIODE 1SS352	
D824	8-719-016-74	DIODE 1SS352	
D825	8-719-016-74	DIODE 1SS352	
D826	8-719-016-74	DIODE 1SS352	
D827	8-719-016-74	DIODE 1SS352	
D828	8-719-016-74	DIODE 1SS352	
D829	8-719-016-74	DIODE 1SS352	
D901	8-719-065-18	DIODE 02DZ6.8-Y(TPH3)	
D902	8-719-065-46	DIODE 02DZ16-Z(TPH3)	
D903	8-719-987-67	DIODE 11EFS2	
D904	8-719-987-67	DIODE 11EFS2	
D905	8-719-079-92	DIODE 1SR159-200TE25	
D906	8-719-079-92	DIODE 1SR159-200TE25	
D907	8-719-079-00	DIODE FCH10A15	
D908	8-719-079-01	DIODE FRH10A15	
D911	8-719-079-92	DIODE 1SR159-200TE25	
D912	8-719-079-92	DIODE 1SR159-200TE25	
D913	8-719-065-43	DIODE 02DZ15-Z(TPH3)	
D914	8-719-065-43	DIODE 02DZ15-Z(TPH3)	
D917	8-719-987-67	DIODE 11EFS2	
D918	8-719-987-67	DIODE 11EFS2	
		< FUSE >	
⚠F901	1-576-256-11	FUSE (BLADE TYPE) (AUTO FUSE) (25A)	
⚠F902	1-576-256-11	FUSE (BLADE TYPE) (AUTO FUSE) (25A)	
		< IC >	
IC801	8-759-385-17	IC NJM4580E(TE2)	
IC802	8-759-385-17	IC NJM4580E(TE2)	
IC806	8-759-385-17	IC NJM4580E(TE2)	
IC807	8-759-385-17	IC NJM4580E(TE2)	
IC808	8-759-385-17	IC NJM4580E(TE2)	
IC809	8-759-385-17	IC NJM4580E(TE2)	
IC811	8-759-385-17	IC NJM4580E(TE2)	
IC812	8-759-385-17	IC NJM4580E(TE2)	
IC813	8-759-385-17	IC NJM4580E(TE2)	
IC814	8-759-385-17	IC NJM4580E(TE2)	
IC901	6-703-643-01	IC TL594INSR	

Ref. No.	Part No.	Description	Remark
		< PHOTO TRANSISTOR >	
IC902	8-719-800-42	PHOTO TRANSISTOR TLP521-1-A	
		< JUMPER RESISTOR >	
JR1	1-216-296-11	SHORT CHIP 0	
JR2	1-216-295-11	SHORT CHIP 0	
JR3	1-216-296-11	SHORT CHIP 0	
JR4	1-216-296-11	SHORT CHIP 0	
JR5	1-216-296-11	SHORT CHIP 0	
JR6	1-216-296-11	SHORT CHIP 0	
JR7	1-216-295-11	SHORT CHIP 0	
JR8	1-216-295-11	SHORT CHIP 0	
JR9	1-216-296-11	SHORT CHIP 0	
JR10	1-216-295-11	SHORT CHIP 0	
JR11	1-216-295-11	SHORT CHIP 0	
JR12	1-216-296-11	SHORT CHIP 0	
JR13	1-216-296-11	SHORT CHIP 0	
JR14	1-216-295-11	SHORT CHIP 0	
JR15	1-216-296-11	SHORT CHIP 0	
JR16	1-216-296-11	SHORT CHIP 0	
		< COIL >	
L901	1-419-851-12	COIL, CHOKE 50uH	
L902	1-410-396-41	INDUCTOR, FERRITE BEAD 0.45uH	
		< PILOT LAMP >	
PL802	1-517-156-11	LAMP, PILOT (65mA/14V)	
		< TRANSISTOR >	
Q101	8-729-107-45	TRANSISTOR 2SC3624A-L16	
Q102	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q103	8-729-014-87	TRANSISTOR 2SC4207-YGRTE85R	
Q104	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q107	8-729-046-32	TRANSISTOR 2SA1201-Y(TE12L.C)	
Q108	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q109	8-729-924-78	FET IRF540	
Q110	8-729-053-85	FET IRF9540	
Q111	8-729-041-66	TRANSISTOR 2SC4015TV2	
Q112	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q201	8-729-107-45	TRANSISTOR 2SC3624A-L16	
Q202	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q203	8-729-014-87	TRANSISTOR 2SC4207-YGRTE85R	
Q204	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q207	8-729-046-32	TRANSISTOR 2SA1201-Y(TE12L.C)	
Q208	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q209	8-729-924-78	FET IRF540	
Q210	8-729-053-85	FET IRF9540	
Q211	8-729-041-66	TRANSISTOR 2SC4015TV2	
Q212	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q301	8-729-107-45	TRANSISTOR 2SC3624A-L16	
Q302	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q303	8-729-014-87	TRANSISTOR 2SC4207-YGRTE85R	
Q304	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q307	8-729-046-32	TRANSISTOR 2SA1201-Y(TE12L.C)	
Q308	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q309	8-729-924-78	FET IRF540	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
Q310	8-729-053-85	FET IRF9540	
Q311	8-729-041-66	TRANSISTOR 2SC4015TV2	
Q312	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q401	8-729-107-45	TRANSISTOR 2SC3624A-L16	
Q402	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q403	8-729-014-87	TRANSISTOR 2SC4207-YGRTE85R	
Q404	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q407	8-729-046-32	TRANSISTOR 2SA1201-Y(TE12L.C)	
Q408	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q409	8-729-924-78	FET IRF540	
Q410	8-729-053-85	FET IRF9540	
Q411	8-729-041-66	TRANSISTOR 2SC4015TV2	
Q412	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q801	8-729-216-22	TRANSISTOR 2SA1162-G	
Q802	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q803	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q804	8-729-216-22	TRANSISTOR 2SA1162-G	
Q805	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q808	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q809	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q810	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q812	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q813	8-729-216-22	TRANSISTOR 2SA1162-G	
Q814	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q850	8-729-216-22	TRANSISTOR 2SA1162-G	
Q901	8-729-052-82	TRANSISTOR KTA1281Y-AT	
Q902	8-729-216-22	TRANSISTOR 2SA1162-G	
Q903	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q904	6-550-341-01	FET FKV550N	
Q905	6-550-341-01	FET FKV550N	
Q906	6-550-341-01	FET FKV550N	
Q907	6-550-341-01	FET FKV550N	
Q908	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q909	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q910	8-729-209-15	TRANSISTOR 2SD2012	
Q911	8-729-209-60	TRANSISTOR 2SB1375	
Q912	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q913	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R101	1-216-837-11	METAL CHIP	22K	5%	1/10W
R102	1-216-837-11	METAL CHIP	22K	5%	1/10W
R103	1-216-845-11	METAL CHIP	100K	5%	1/10W
R104	1-216-845-11	METAL CHIP	100K	5%	1/10W
R105	1-216-837-11	METAL CHIP	22K	5%	1/10W
R106	1-216-837-11	METAL CHIP	22K	5%	1/10W
R111	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R113	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R114	1-216-845-11	METAL CHIP	100K	5%	1/10W
R115	1-216-845-11	METAL CHIP	100K	5%	1/10W
R117	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R118	1-216-833-11	METAL CHIP	10K	5%	1/10W
R119	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R120	1-216-819-11	METAL CHIP	680	5%	1/10W
R121	1-216-837-11	METAL CHIP	22K	5%	1/10W
R122	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R124	1-216-033-00	METAL CHIP	220	5%	1/10W
R126	1-216-214-00	RES-CHIP	4.7K	5%	1/8W
R127	1-216-837-11	METAL CHIP	22K	5%	1/10W
R128	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R129	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R130	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R131	1-216-837-11	METAL CHIP	22K	5%	1/10W
R132	1-216-837-11	METAL CHIP	22K	5%	1/10W
R133	1-249-409-11	CARBON	220	5%	1/4W
R134	1-249-409-11	CARBON	220	5%	1/4W
R135	1-216-809-11	METAL CHIP	100	5%	1/10W
R136	1-216-809-11	METAL CHIP	100	5%	1/10W
R137	1-216-845-11	METAL CHIP	100K	5%	1/10W
R138	1-216-845-11	METAL CHIP	100K	5%	1/10W
R139	1-249-417-11	CARBON	1K	5%	1/4W
R140	1-249-421-11	CARBON	2.2K	5%	1/4W
R142	1-216-033-00	METAL CHIP	220	5%	1/10W
R144	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R145	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R150	1-216-853-11	METAL CHIP	470K	5%	1/10W
R151	1-215-857-31	METAL OXIDE	10	5%	1W F
R158	1-205-991-11	METAL	0.1X2		5W
R201	1-216-837-11	METAL CHIP	22K	5%	1/10W
R202	1-216-837-11	METAL CHIP	22K	5%	1/10W
R203	1-216-845-11	METAL CHIP	100K	5%	1/10W
R204	1-216-845-11	METAL CHIP	100K	5%	1/10W
R205	1-216-837-11	METAL CHIP	22K	5%	1/10W
R206	1-216-837-11	METAL CHIP	22K	5%	1/10W
R211	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R213	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R214	1-216-845-11	METAL CHIP	100K	5%	1/10W
R215	1-216-845-11	METAL CHIP	100K	5%	1/10W
R217	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R218	1-216-833-11	METAL CHIP	10K	5%	1/10W
R219	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R220	1-216-819-11	METAL CHIP	680	5%	1/10W
R221	1-216-837-11	METAL CHIP	22K	5%	1/10W
R222	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R224	1-216-033-00	METAL CHIP	220	5%	1/10W
R226	1-216-821-11	METAL CHIP	1K	5%	1/10W
R227	1-216-837-11	METAL CHIP	22K	5%	1/10W
R228	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R229	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R230	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R231	1-216-837-11	METAL CHIP	22K	5%	1/10W
R232	1-216-837-11	METAL CHIP	22K	5%	1/10W
R233	1-249-409-11	CARBON	220	5%	1/4W
R234	1-249-409-11	CARBON	220	5%	1/4W
R235	1-216-809-11	METAL CHIP	100	5%	1/10W
R236	1-216-809-11	METAL CHIP	100	5%	1/10W
R237	1-216-845-11	METAL CHIP	100K	5%	1/10W
R238	1-216-845-11	METAL CHIP	100K	5%	1/10W
R239	1-249-417-11	CARBON	1K	5%	1/4W
R240	1-249-421-11	CARBON	2.2K	5%	1/4W
R242	1-216-033-00	METAL CHIP	220	5%	1/10W
R244	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R245	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R250	1-216-853-11	METAL CHIP	470K	5%	1/10W
R251	1-215-857-31	METAL OXIDE	10	5%	1W F
R258	1-205-991-11	METAL	0.1X2		5W

MAIN

Ref. No.	Part No.	Description			Remark
R301	1-216-837-11	METAL CHIP	22K	5%	1/10W
R302	1-216-837-11	METAL CHIP	22K	5%	1/10W
R303	1-216-845-11	METAL CHIP	100K	5%	1/10W
R304	1-216-845-11	METAL CHIP	100K	5%	1/10W
R305	1-216-837-11	METAL CHIP	22K	5%	1/10W
R306	1-216-837-11	METAL CHIP	22K	5%	1/10W
R307	1-216-833-11	METAL CHIP	10K	5%	1/10W
R308	1-216-837-11	METAL CHIP	22K	5%	1/10W
R309	1-216-833-11	METAL CHIP	10K	5%	1/10W
R310	1-218-867-11	METAL CHIP	6.8K	5%	1/10W
R311	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R312	1-216-833-11	METAL CHIP	10K	5%	1/10W
R313	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R314	1-216-845-11	METAL CHIP	100K	5%	1/10W
R315	1-216-845-11	METAL CHIP	100K	5%	1/10W
R316	1-216-845-11	METAL CHIP	100K	5%	1/10W
R317	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R318	1-216-833-11	METAL CHIP	10K	5%	1/10W
R319	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R320	1-216-819-11	METAL CHIP	680	5%	1/10W
R321	1-216-837-11	METAL CHIP	22K	5%	1/10W
R322	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R324	1-216-033-00	METAL CHIP	220	5%	1/10W
R326	1-216-821-11	METAL CHIP	1K	5%	1/10W
R327	1-216-837-11	METAL CHIP	22K	5%	1/10W
R328	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R329	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R330	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R331	1-216-837-11	METAL CHIP	22K	5%	1/10W
R332	1-216-837-11	METAL CHIP	22K	5%	1/10W
R333	1-249-409-11	CARBON	220	5%	1/4W
R334	1-249-409-11	CARBON	220	5%	1/4W
R335	1-216-809-11	METAL CHIP	100	5%	1/10W
R336	1-216-809-11	METAL CHIP	100	5%	1/10W
R337	1-216-845-11	METAL CHIP	100K	5%	1/10W
R338	1-216-845-11	METAL CHIP	100K	5%	1/10W
R339	1-249-417-11	CARBON	1K	5%	1/4W
R340	1-249-421-11	CARBON	2.2K	5%	1/4W
R342	1-216-033-00	METAL CHIP	220	5%	1/10W
R344	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R345	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R350	1-216-853-11	METAL CHIP	470K	5%	1/10W
R351	1-215-857-31	METAL OXIDE	10	5%	1W F
R358	1-205-991-11	METAL	0.1X2		5W
R401	1-216-837-11	METAL CHIP	22K	5%	1/10W
R402	1-216-837-11	METAL CHIP	22K	5%	1/10W
R403	1-216-845-11	METAL CHIP	100K	5%	1/10W
R404	1-216-845-11	METAL CHIP	100K	5%	1/10W
R405	1-216-837-11	METAL CHIP	22K	5%	1/10W
R406	1-216-837-11	METAL CHIP	22K	5%	1/10W
R407	1-216-833-11	METAL CHIP	10K	5%	1/10W
R408	1-216-837-11	METAL CHIP	22K	5%	1/10W
R409	1-216-833-11	METAL CHIP	10K	5%	1/10W
R410	1-218-867-11	METAL CHIP	6.8K	5%	1/10W
R411	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R412	1-216-833-11	METAL CHIP	10K	5%	1/10W
R413	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R414	1-216-845-11	METAL CHIP	100K	5%	1/10W
R415	1-216-845-11	METAL CHIP	100K	5%	1/10W
R416	1-216-845-11	METAL CHIP	100K	5%	1/10W
R417	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R418	1-216-833-11	METAL CHIP	10K	5%	1/10W
R419	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R420	1-216-819-11	METAL CHIP	680	5%	1/10W
R421	1-216-837-11	METAL CHIP	22K	5%	1/10W
R422	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R424	1-216-033-00	METAL CHIP	220	5%	1/10W
R426	1-216-821-11	METAL CHIP	1K	5%	1/10W
R427	1-216-837-11	METAL CHIP	22K	5%	1/10W
R428	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R429	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R430	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R431	1-216-837-11	METAL CHIP	22K	5%	1/10W
R432	1-216-837-11	METAL CHIP	22K	5%	1/10W
R433	1-249-409-11	CARBON	220	5%	1/4W
R434	1-249-409-11	CARBON	220	5%	1/4W
R435	1-216-809-11	METAL CHIP	100	5%	1/10W
R436	1-216-809-11	METAL CHIP	100	5%	1/10W
R437	1-216-845-11	METAL CHIP	100K	5%	1/10W
R438	1-216-845-11	METAL CHIP	100K	5%	1/10W
R439	1-249-417-11	CARBON	1K	5%	1/4W
R440	1-249-421-11	CARBON	2.2K	5%	1/4W
R442	1-216-033-00	METAL CHIP	220	5%	1/10W
R444	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R445	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R450	1-216-853-11	METAL CHIP	470K	5%	1/10W
R451	1-215-857-31	METAL OXIDE	10	5%	1W F
R458	1-205-991-11	METAL	0.1X2		5W
R800	1-216-857-11	METAL CHIP	1M	5%	1/10W
R801	1-216-821-11	METAL CHIP	1K	5%	1/10W
R802	1-216-833-11	METAL CHIP	10K	5%	1/10W
R803	1-216-841-11	METAL CHIP	47K	5%	1/10W
R804	1-216-841-11	METAL CHIP	47K	5%	1/10W
R805	1-216-839-11	METAL CHIP	33K	5%	1/10W
R806	1-216-833-11	METAL CHIP	10K	5%	1/10W
R807	1-216-833-11	METAL CHIP	10K	5%	1/10W
R808	1-216-833-11	METAL CHIP	10K	5%	1/10W
R809	1-216-833-11	METAL CHIP	10K	5%	1/10W
R810	1-216-857-11	METAL CHIP	1M	5%	1/10W
R811	1-249-421-11	CARBON	2.2K	5%	1/4W
R812	1-249-417-11	CARBON	1K	5%	1/4W
R818	1-216-833-11	METAL CHIP	10K	5%	1/10W
R820	1-216-833-11	METAL CHIP	10K	5%	1/10W
R821	1-249-417-11	CARBON	1K	5%	1/4W
R824	1-216-845-11	METAL CHIP	100K	5%	1/10W
R825	1-216-833-11	METAL CHIP	10K	5%	1/10W
R826	1-216-833-11	METAL CHIP	10K	5%	1/10W
R827	1-216-833-11	METAL CHIP	10K	5%	1/10W
R828	1-216-833-11	METAL CHIP	10K	5%	1/10W
R829	1-216-833-11	METAL CHIP	10K	5%	1/10W
R830	1-216-833-11	METAL CHIP	10K	5%	1/10W
R838	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R839	1-216-857-11	METAL CHIP	1M	5%	1/10W
R841	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R843	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R845	1-216-827-11	METAL CHIP	3.3K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R847	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R850	1-216-833-11	METAL CHIP	10K	5%	1/10W
R854	1-216-841-11	METAL CHIP	47K	5%	1/10W
R855	1-216-841-11	METAL CHIP	47K	5%	1/10W
R856	1-216-841-11	METAL CHIP	47K	5%	1/10W
R870	1-216-295-11	SHORT CHIP	0		
R901	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R902	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R903	1-216-836-11	METAL CHIP	18K	5%	1/10W
R904	1-216-836-11	METAL CHIP	18K	5%	1/10W
R905	1-216-849-11	METAL CHIP	220K	5%	1/10W
R906	1-216-210-00	RES-CHIP	3.3K	5%	1/8W
R907	1-249-417-11	CARBON	1K	5%	1/4W
R909	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R910	1-216-833-11	METAL CHIP	10K	5%	1/10W
R911	1-216-833-11	METAL CHIP	10K	5%	1/10W
R912	1-249-411-11	CARBON	330	5%	1/4W
R913	1-216-819-11	METAL CHIP	680	5%	1/10W
R914	1-216-819-11	METAL CHIP	680	5%	1/10W
R915	1-216-833-11	METAL CHIP	10K	5%	1/10W
R916	1-216-150-11	RES-CHIP	10	5%	1/8W
R917	1-216-819-11	METAL CHIP	680	5%	1/10W
R918	1-216-819-11	METAL CHIP	680	5%	1/10W
R920	1-216-150-11	RES-CHIP	10	5%	1/8W
R921	1-216-150-11	RES-CHIP	10	5%	1/8W
R922	1-216-150-11	RES-CHIP	10	5%	1/8W
R923	1-216-065-11	RES-CHIP	4.7K	5%	1/10W
R924	1-216-065-11	RES-CHIP	4.7K	5%	1/10W
R925	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R927	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R929	1-216-013-00	METAL CHIP	33	5%	1/10W
R930	1-216-013-00	METAL CHIP	33	5%	1/10W
R931	1-216-821-11	METAL CHIP	1K	5%	1/10W
R932	1-216-821-11	METAL CHIP	1K	5%	1/10W
R933	1-216-821-11	METAL CHIP	1K	5%	1/10W
R934	1-216-821-11	METAL CHIP	1K	5%	1/10W
		< CERMET RESISTOR >			
RV104	1-241-762-11	RES, ADJ, CERMET 2.2K			
RV204	1-241-762-11	RES, ADJ, CERMET 2.2K			
RV304	1-241-762-11	RES, ADJ, CERMET 2.2K			
RV404	1-241-762-11	RES, ADJ, CERMET 2.2K			
		< VARIABLE RESISTOR >			
RV801	1-225-647-11	RES, VAR, CARBON 20KX4 (FILTER (FRONT))			
RV802	1-225-648-12	RES, VAR, CARBON 5KX2 (LOW BOOST (40Hz) (FRONT))			
RV803	1-225-648-12	RES, VAR, CARBON 5KX2 (LEVEL (FRONT))			
RV804	1-225-647-11	RES, VAR, CARBON 20KX4 (FILTER (REAR))			
RV805	1-225-648-12	RES, VAR, CARBON 5KX2 (LOW BOOST (40Hz) (REAR))			
RV806	1-225-648-12	RES, VAR, CARBON 5KX2 (LEVEL (REAR))			
		< SWITCH >			
S801	1-771-271-11	SWITCH, SLIDE (FILTER (FRONT))			
S802	1-572-185-11	SWITCH, SLIDE (FILTER (REAR))			

Ref. No.	Part No.	Description	Remark
		< TRANSFORMER >	
T801	1-439-636-11	TRANSFORMER, DC-DC CONVERTER	
		< THERMISTOR (NEGATIVE) >	
THN801	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)	
THN804	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)	
THN805	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)	
THN806	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)	
THN807	1-804-301-11	THERMISTOR, CHIP (NEGATIVE)	

****

ACCESSORIES

****

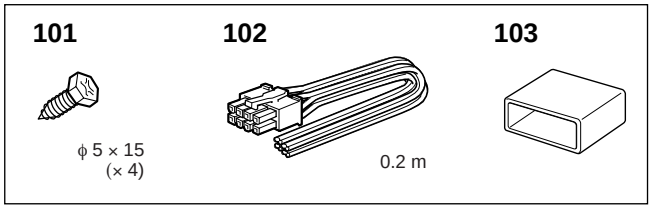
	3-263-557-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH)	
	3-263-557-21	MANUAL, INSTRUCTION (GERMAN,ITALIAN)	(AEP,UK,E)
	3-263-557-31	MANUAL, INSTRUCTION (SPANISH, TRADITIONAL CHINESE)	(AEP,UK,E)
	3-263-557-41	MANUAL, INSTRUCTION (DUTCH,PORTUGUESE)	(AEP,UK,E)
	3-263-557-51	MANUAL, INSTRUCTION (SWEDISH,POLISH)	(AEP,UK,E)
	3-263-557-61	MANUAL, INSTRUCTION (GREEK,RUSSIAN)	(AEP,UK,E)

****

PARTS FOR INSTALLATION AND CONNECTIONS

****

101	3-367-410-01	SCREW (DIA.5X15), TAPPING	(MOUNTING SCREW)
102	1-823-952-11	CORD (WITH CONNECTOR) (0.2m)	
103	3-249-791-01	COVER (POWER)	



MEMO

XM-4060GTX

SONY

SERVICE MANUAL

Ver. 1.1 2005. 05

US Model
Canadian Model
AEP Model
UK Model
E Model

SUPPLEMENT-1

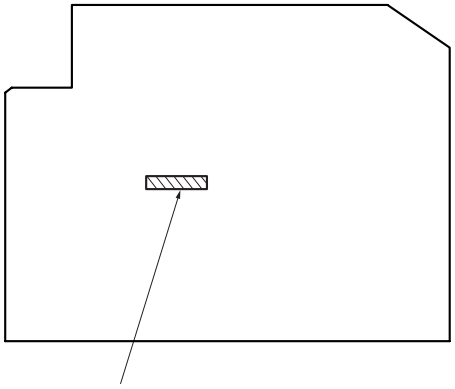
File this supplement with the service manual.

Subject : Change the MAIN, HI-LEVEL and LED boards.

Printed wiring board and schematic diagram of new type, and changed parts list are described in this Supplement-1.
When performing service and inspection, check the suffix of the part number of the MAIN, HI-LEVEL and LED boards.

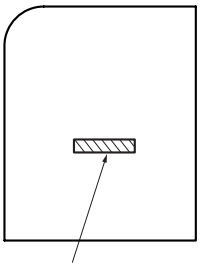
DISCRIMINATION

— MAIN BOARD (COMPONENT SIDE) —



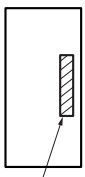
MAIN BOARD Part No.
Former : 1-687-560-12
New : 1-865-444-12

— HI-LEVEL BOARD (COMPONENT SIDE) —



HI-LEVEL BOARD Part No.
Former : 1-687-561-12
New : 1-865-488-12

— LED BOARD (COMPONENT SIDE) —



LED BOARD Part No.
Former : 1-687-562-12
New : 1-865-445-12

TABLE OF CONTENTS

1. Printed Wiring Board –Main Section– 3
2. Schematic Diagram –Main Section (1/2)– 4
3. Schematic Diagram –Main Section (2/2)– 5
4. Printed Wiring Boards –High-Level, LED Section– 6
5. Electrical Parts List 6

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

for schematic diagram:
Note:

- All capacitors are in µF unless otherwise noted. (p: pF) 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- : nonflammable resistor.
- : panel designation.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

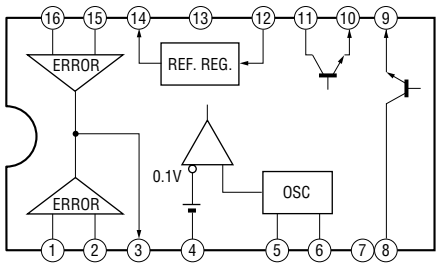
- : B+ Line.
- : B– Line.
- : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from +12V and REM terminals.
- Voltage and waveform are dc with respect to ground under no-signal condition.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : AUDIO
- (( )): Page of Supplement-1.

for printed wiring boards:
Note:

- : parts extracted from the component side.
- : Pattern from the side which enables seeing.
- (( )) : Page of Supplement-1.

• IC Block Diagram

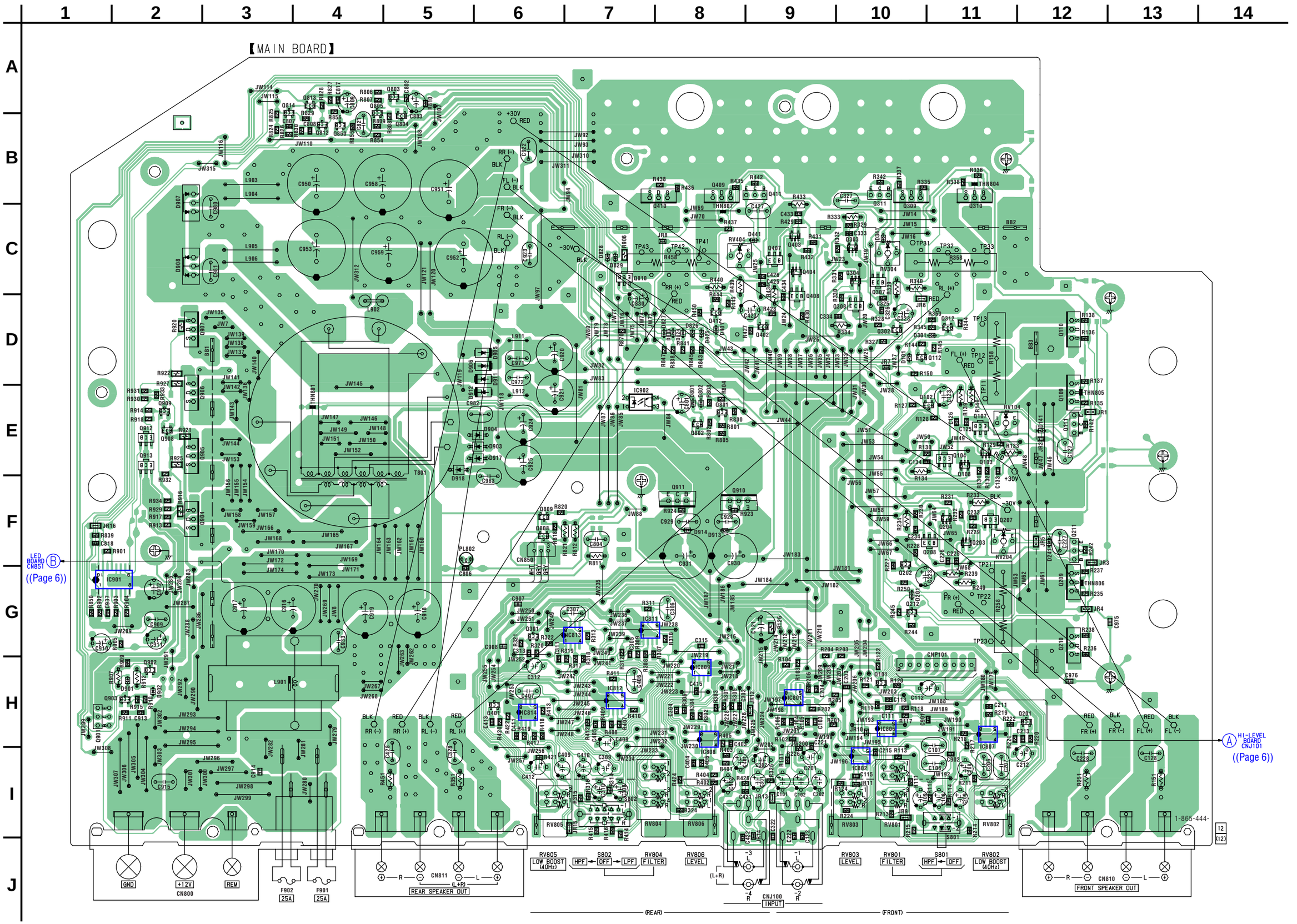
IC901 TL594INSR



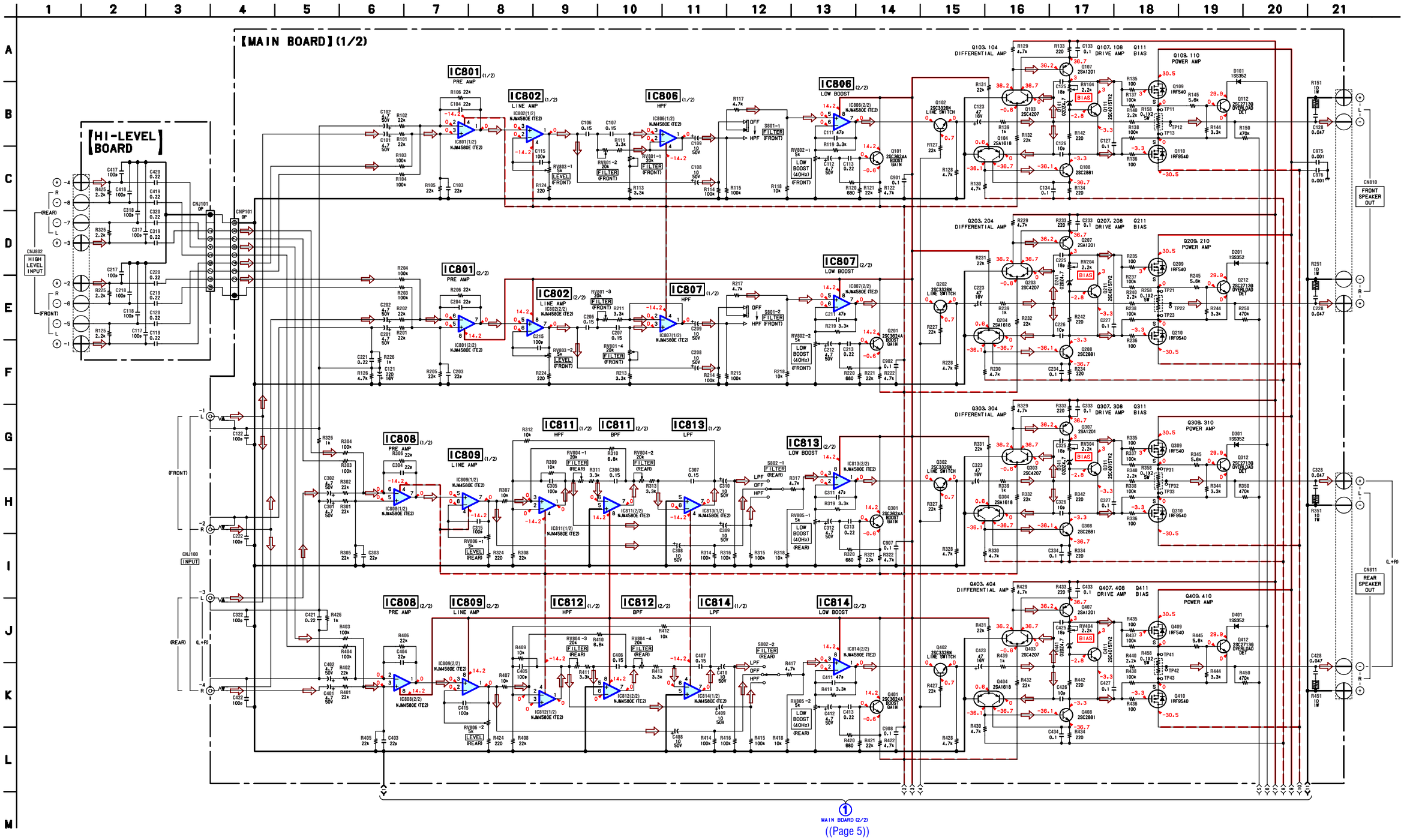
• Semiconductor Location (MAIN SECTION)

Ref. No.	Location	Ref. No.	Location
D101	D-10	Q201	H-12
D141	E-12	Q202	G-10
D201	G-10	Q203	F-11
D241	F-12	Q204	F-11
D301	D-10	Q207	F-11
D341	C-10	Q208	F-11
D401	D-8	Q209	G-12
D441	C-9	Q210	G-12
D801	E-8	Q211	F-12
D802	E-8	Q212	G-10
D805	D-8	Q301	G-6
D824	D-8	Q302	D-10
D825	D-8	Q303	C-10
D826	D-8	Q304	C-10
D827	D-8	Q307	C-10
D828	C-7	Q308	D-10
D829	C-7	Q309	B-10
D901	H-2	Q310	B-11
D902	H-2	Q311	B-10
D903	E-6	Q312	D-11
D904	E-6	Q401	H-6
D905	D-6	Q402	D-9
D906	D-6	Q403	C-9
D907	B-2	Q404	C-9
D908	C-2	Q407	C-9
D911	D-6	Q408	C-9
D912	E-6	Q409	B-8
D913	F-8	Q410	B-8
D914	F-8	Q411	B-9
D917	E-6	Q412	D-8
D918	E-5	Q801	E-8
		Q802	E-8
IC801	H-9	Q803	A-5
IC802	I-10	Q804	B-5
IC806	H-10	Q805	A-4
IC807	H-11	Q808	F-6
IC808	H-8	Q809	F-6
IC809	H-8	Q810	C-7
IC811	G-7	Q812	B-4
IC812	H-7	Q813	A-4
IC813	G-7	Q814	A-3
IC814	H-6	Q850	B-4
IC901	G-1	Q901	H-1
IC902	E-7	Q902	H-2
		Q903	H-2
Q101	H-10	Q904	F-2
Q102	E-11	Q905	E-2
Q103	E-11	Q906	E-2
Q104	E-11	Q907	D-2
Q107	E-11	Q908	E-2
Q108	E-11	Q909	E-2
Q109	E-12	Q910	F-8
Q110	D-12	Q911	F-8
Q111	E-12	Q912	E-2
Q112	D-10	Q913	E-2

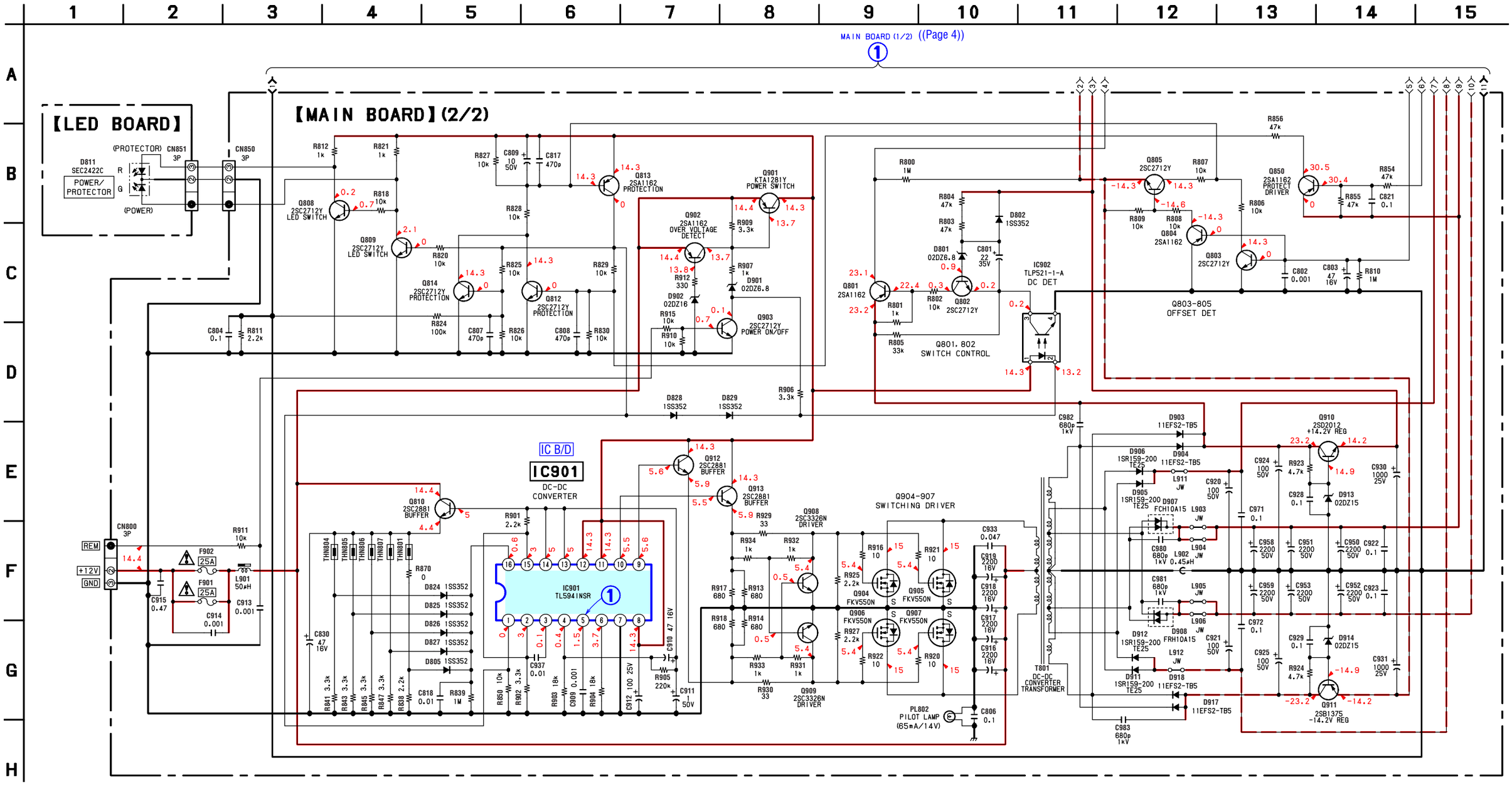
1. PRINTED WIRING BOARD — MAIN SECTION — • Refer to page 2 for Semiconductor Location.



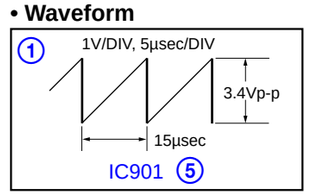
2. SCHEMATIC DIAGRAM — MAIN SECTION (1/2) —



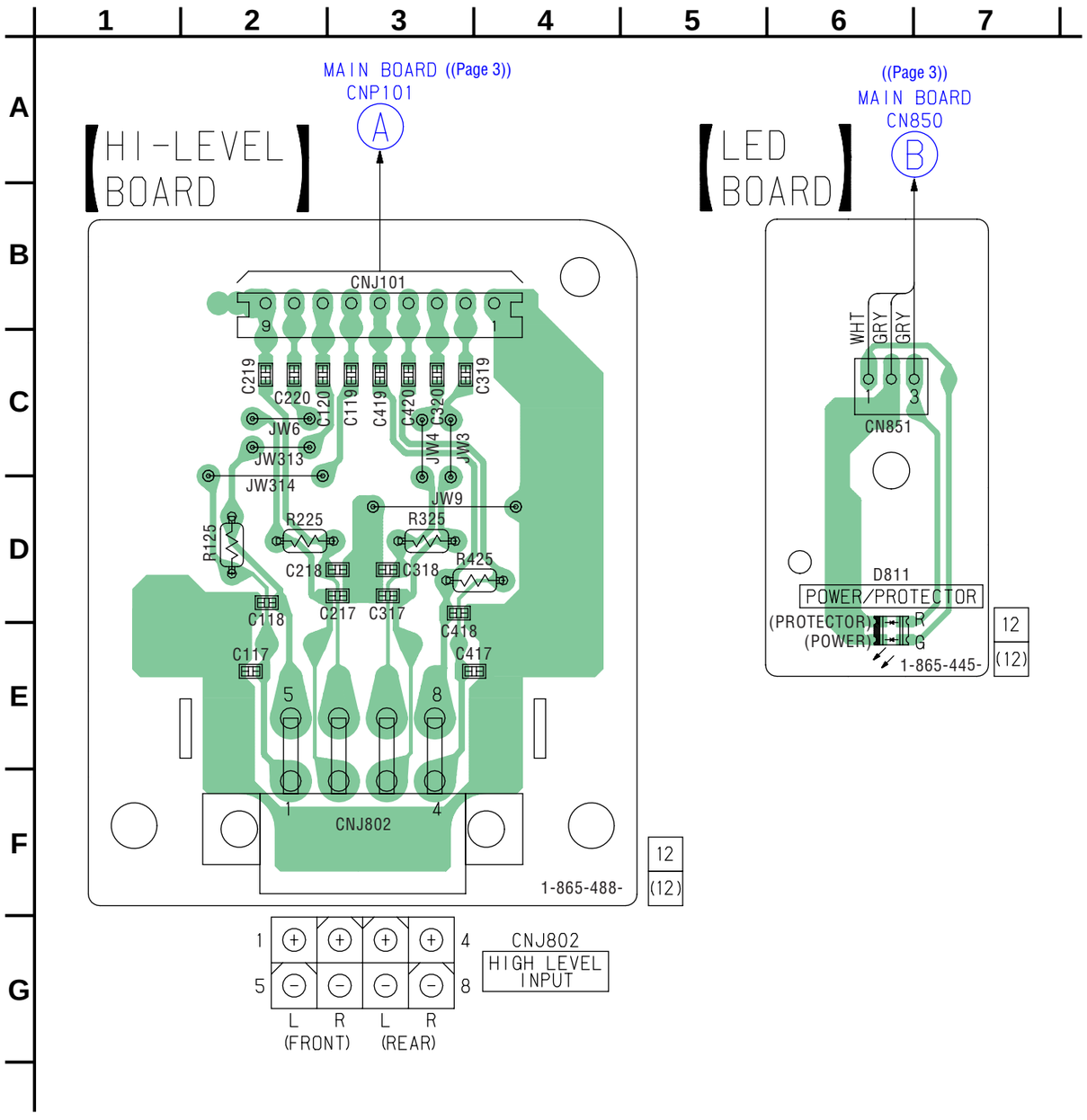
3. SCHEMATIC DIAGRAM — MAIN SECTION (2/2) — • Refer to page 2 for IC Block Diagram.



• **Waveform**



4. PRINTED WIRING BOARDS — HIGH-LEVEL, LED SECTION —



HI-LEVEL **LED** **MAIN**

5. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ, for example:
  uA.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
		HI-LEVEL BOARD			
		**********			
	3-249-924-01	BRACKET (HIGH LEVEL)			
	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT			
		< CAPACITOR >			
C117	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C118	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C119	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C120	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C217	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C218	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C219	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C220	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C317	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C318	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C319	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C320	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C417	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C418	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C419	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C420	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
		< CONNECTOR >			
CNJ101	1-784-916-11	CONNECTOR, BOARD TO BOARD 9P			
CNJ802	1-580-283-11	PIN, CONNECTOR (PC BOARD) 8P (HIGH LEVEL INPUT)			
		< RESISTOR >			
R125	1-249-421-11	CARBON	2.2K	5%	1/4W
R225	1-249-421-11	CARBON	2.2K	5%	1/4W
R325	1-249-421-11	CARBON	2.2K	5%	1/4W
R425	1-249-421-11	CARBON	2.2K	5%	1/4W
**********					
		LED BOARD			
		**********			
		< DIODE >			
D811	8-719-045-51	LED SEC2422C (POWER/PROTECTOR)			
**********					

Ref. No.	Part No.	Description			Remark
	A-3274-684-B	MAIN BOARD, COMPLETE			
		**********			
	3-225-183-22	SCREW (+PSW.TT.3XL)			
	3-225-183-32	SCREW (+PSW.TT.3XL)			
	3-225-184-12	SCREW (+PS.TT.3XL)			
	3-238-413-01	SHEET (TR), INSULATING			
	3-253-537-01	SCREW (M5X11)			
	3-912-431-01	SCREW (+–P)			
	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT			
		< CAPACITOR >			
C101	1-126-794-11	ELECT	4.7uF	20%	50V
C102	1-126-794-11	ELECT	4.7uF	20%	50V
C103	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C104	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C106	1-136-167-00	FILM	0.15uF	5%	50V
C107	1-136-167-00	FILM	0.15uF	5%	50V
C108	1-126-795-11	ELECT	10uF	20%	50V
C109	1-126-795-11	ELECT	10uF	20%	50V
C111	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C112	1-126-794-11	ELECT	4.7uF	20%	50V
C113	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C115	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C121	1-128-499-11	ELECT	220uF	20%	16V
C122	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C123	1-126-786-11	ELECT	47uF	20%	16V
C125	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C126	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C127	1-136-497-81	FILM	0.1uF	5%	50V
C128	1-136-161-00	FILM	0.047uF	5%	50V
C133	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C134	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C201	1-126-794-11	ELECT	4.7uF	20%	50V
C202	1-126-794-11	ELECT	4.7uF	20%	50V
C203	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C204	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C206	1-136-167-00	FILM	0.15uF	5%	50V
C207	1-136-167-00	FILM	0.15uF	5%	50V
C208	1-126-795-11	ELECT	10uF	20%	50V
C209	1-126-795-11	ELECT	10uF	20%	50V
C211	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C212	1-126-794-11	ELECT	4.7uF	20%	50V
C213	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C215	1-163-251-11	CERAMIC CHIP	100PF	5%	50V

Ref. No.	Part No.	Description			Remark
C221	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C222	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C223	1-126-786-11	ELECT	47uF	20%	16V
C225	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C226	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C227	1-136-497-81	FILM	0.1uF	5%	50V
C228	1-136-161-00	FILM	0.047uF	5%	50V
C233	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C234	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C301	1-126-794-11	ELECT	4.7uF	20%	50V
C302	1-126-794-11	ELECT	4.7uF	20%	50V
C303	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C304	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C305	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C306	1-136-167-00	FILM	0.15uF	5%	50V
C307	1-136-167-00	FILM	0.15uF	5%	50V
C308	1-126-795-11	ELECT	10uF	20%	50V
C309	1-126-795-11	ELECT	10uF	20%	50V
C310	1-126-795-11	ELECT	10uF	20%	50V
C311	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C312	1-126-794-11	ELECT	4.7uF	20%	50V
C313	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C315	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C322	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C323	1-126-786-11	ELECT	47uF	20%	16V
C325	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C326	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C327	1-136-497-81	FILM	0.1uF	5%	50V
C328	1-136-161-00	FILM	0.047uF	5%	50V
C333	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C334	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C401	1-126-794-11	ELECT	4.7uF	20%	50V
C402	1-126-794-11	ELECT	4.7uF	20%	50V
C403	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C404	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C405	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C406	1-136-167-00	FILM	0.15uF	5%	50V
C407	1-136-167-00	FILM	0.15uF	5%	50V
C408	1-126-795-11	ELECT	10uF	20%	50V
C409	1-126-795-11	ELECT	10uF	20%	50V
C410	1-126-795-11	ELECT	10uF	20%	50V
C411	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C412	1-126-794-11	ELECT	4.7uF	20%	50V
C413	1-127-715-11	CERAMIC CHIP	0.22uF	10%	16V
C415	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C421	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C422	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C423	1-126-786-11	ELECT	47uF	20%	16V
C425	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C426	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C427	1-136-497-81	FILM	0.1uF	5%	50V
C428	1-136-161-00	FILM	0.047uF	5%	50V
C433	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C434	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C801	1-126-796-11	ELECT	22uF	20%	50V
C802	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C803	1-126-786-11	ELECT	47uF	20%	16V
C804	1-136-497-81	FILM	0.1uF	5%	50V
C806	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C807	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C808	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C809	1-126-964-11	ELECT	10uF	20%	50V
C817	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C818	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C821	1-136-497-81	FILM	0.1uF	5%	50V
C830	1-126-786-11	ELECT	47uF	20%	16V
C901	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C902	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C907	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C908	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C909	1-130-471-00	MYLAR	0.001uF	5%	50V
C910	1-126-786-11	ELECT	47uF	20%	16V
C911	1-126-960-11	ELECT	1uF	20%	50V
C912	1-104-665-11	ELECT	100uF	20%	25V
C913	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C914	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C915	1-137-194-81	FILM	0.47uF	5%	50V
C916	1-131-731-11	ELECT	2200uF	20%	16V
C917	1-131-731-11	ELECT	2200uF	20%	16V
C918	1-131-731-11	ELECT	2200uF	20%	16V
C919	1-131-731-11	ELECT	2200uF	20%	16V
C920	1-126-968-11	ELECT	100uF	20%	50V
C921	1-126-968-11	ELECT	100uF	20%	50V
C922	1-136-497-81	FILM	0.1uF	5%	50V
C923	1-136-497-81	FILM	0.1uF	5%	50V
C924	1-126-968-11	ELECT	100uF	20%	50V
C925	1-126-968-11	ELECT	100uF	20%	50V
C928	1-136-497-81	FILM	0.1uF	5%	50V
C929	1-136-497-81	FILM	0.1uF	5%	50V
C930	1-126-942-61	ELECT	1000uF	20%	25V
C931	1-126-942-61	ELECT	1000uF	20%	25V
C933	1-136-161-00	FILM	0.047uF	5%	50V
C937	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C950	1-100-199-31	ELECT	2200uF	20%	50V
C951	1-100-199-31	ELECT	2200uF	20%	50V
C952	1-100-199-31	ELECT	2200uF	20%	50V
C953	1-100-199-31	ELECT	2200uF	20%	50V
C958	1-100-199-31	ELECT	2200uF	20%	50V
C959	1-100-199-31	ELECT	2200uF	20%	50V
C971	1-136-497-81	FILM	0.1uF	5%	50V
C972	1-136-497-81	FILM	0.1uF	5%	50V
C975	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C976	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C980	1-125-969-11	CERAMIC	680PF	10%	1KV
C981	1-125-969-11	CERAMIC	680PF	10%	1KV
C982	1-125-969-11	CERAMIC	680PF	10%	1KV
C983	1-125-969-11	CERAMIC	680PF	10%	1KV
		< TERMINAL BOARD >			
CN800	1-694-983-11	TERMINAL BOARD (3P+FUSE) (REM,+12V,GND,25A,25A)			
CN810	1-694-985-11	TERMINAL BOARD (4P) (FRONT SPEAKER OUT)			
CN811	1-694-985-11	TERMINAL BOARD (4P) (REAR SPEAKER OUT)			
		< CONNECTOR >			
CN850	1-506-468-11	PIN, CONNECTOR 3P			

MAIN

Ref. No.	Part No.	Description	Remark
CNP101	1-784-917-11	PIN, CONNECTOR (PWB) 9P	
		< JACK >	
CNJ100	1-779-078-41	JACK, PIN 4P (INPUT)	
		< DIODE >	
D101	8-719-016-74	DIODE 1SS352	
D141	8-719-017-03	DIODE 02DZ4.7-TPH3	
D201	8-719-016-74	DIODE 1SS352	
D241	8-719-017-03	DIODE 02DZ4.7-TPH3	
D301	8-719-016-74	DIODE 1SS352	
D341	8-719-017-03	DIODE 02DZ4.7-TPH3	
D401	8-719-016-74	DIODE 1SS352	
D441	8-719-017-03	DIODE 02DZ4.7-TPH3	
D801	8-719-065-18	DIODE 02DZ6.8-Y(TPH3)	
D802	8-719-016-74	DIODE 1SS352	
D805	8-719-016-74	DIODE 1SS352	
D824	8-719-016-74	DIODE 1SS352	
D825	8-719-016-74	DIODE 1SS352	
D826	8-719-016-74	DIODE 1SS352	
D827	8-719-016-74	DIODE 1SS352	
D828	8-719-016-74	DIODE 1SS352	
D829	8-719-016-74	DIODE 1SS352	
D901	8-719-065-18	DIODE 02DZ6.8-Y(TPH3)	
D902	8-719-065-46	DIODE 02DZ16-Z(TPH3)	
D903	8-719-987-67	DIODE 11EFS2	
D904	8-719-987-67	DIODE 11EFS2	
D905	8-719-079-92	DIODE 1SR159-200TE25	
D906	8-719-079-92	DIODE 1SR159-200TE25	
D907	8-719-079-00	DIODE FCH10A15	
D908	8-719-079-01	DIODE FRH10A15	
D911	8-719-079-92	DIODE 1SR159-200TE25	
D912	8-719-079-92	DIODE 1SR159-200TE25	
D913	8-719-065-43	DIODE 02DZ15-Z(TPH3)	
D914	8-719-065-43	DIODE 02DZ15-Z(TPH3)	
D917	8-719-987-67	DIODE 11EFS2	
D918	8-719-987-67	DIODE 11EFS2	
		< FUSE >	
⚠F901	1-576-256-11	FUSE (BLADE TYPE) (AUTO FUSE) (25A)	
⚠F902	1-576-256-11	FUSE (BLADE TYPE) (AUTO FUSE) (25A)	
		< IC >	
IC801	8-759-385-17	IC NJM4580E(TE2)	
IC802	8-759-385-17	IC NJM4580E(TE2)	
IC806	8-759-385-17	IC NJM4580E(TE2)	
IC807	8-759-385-17	IC NJM4580E(TE2)	
IC808	8-759-385-17	IC NJM4580E(TE2)	
IC809	8-759-385-17	IC NJM4580E(TE2)	
IC811	8-759-385-17	IC NJM4580E(TE2)	
IC812	8-759-385-17	IC NJM4580E(TE2)	
IC813	8-759-385-17	IC NJM4580E(TE2)	
IC814	8-759-385-17	IC NJM4580E(TE2)	
IC901	6-703-643-01	IC TL594INSR	

Ref. No.	Part No.	Description	Remark
		< PHOTO TRANSISTOR >	
IC902	8-719-800-42	PHOTO TRANSISTOR TLP521-1-A	
		< JUMPER RESISTOR >	
JR1	1-216-296-11	SHORT CHIP 0	
JR2	1-216-295-11	SHORT CHIP 0	
JR3	1-216-296-11	SHORT CHIP 0	
JR4	1-216-296-11	SHORT CHIP 0	
JR5	1-216-296-11	SHORT CHIP 0	
JR6	1-216-296-11	SHORT CHIP 0	
JR7	1-216-295-11	SHORT CHIP 0	
JR8	1-216-295-11	SHORT CHIP 0	
JR9	1-216-296-11	SHORT CHIP 0	
JR10	1-216-295-11	SHORT CHIP 0	
JR11	1-216-295-11	SHORT CHIP 0	
JR12	1-216-296-11	SHORT CHIP 0	
JR13	1-216-296-11	SHORT CHIP 0	
JR14	1-216-295-11	SHORT CHIP 0	
JR15	1-216-296-11	SHORT CHIP 0	
JR16	1-216-296-11	SHORT CHIP 0	
		< COIL >	
L901	1-419-851-12	INDUCTOR 50uH	
L902	1-410-396-41	FERRITE 0.45uH	
		< PILOT LAMP >	
PL802	1-517-156-11	LAMP, PILOT (65mA/14V)	
		< TRANSISTOR >	
Q101	8-729-107-45	TRANSISTOR 2SC3624A-L16	
Q102	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q103	8-729-014-87	TRANSISTOR 2SC4207-YGRTE85R	
Q104	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q107	8-729-046-32	TRANSISTOR 2SA1201-Y(TE12L.C)	
Q108	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q109	8-729-924-78	FET IRF540	
Q110	8-729-053-85	FET IRF9540	
Q111	8-729-041-66	TRANSISTOR 2SC4015TV2	
Q112	8-729-271-31	TRANSISTOR 2SC2713-G	
Q201	8-729-107-45	TRANSISTOR 2SC3624A-L16	
Q202	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q203	8-729-014-87	TRANSISTOR 2SC4207-YGRTE85R	
Q204	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q207	8-729-046-32	TRANSISTOR 2SA1201-Y(TE12L.C)	
Q208	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q209	8-729-924-78	FET IRF540	
Q210	8-729-053-85	FET IRF9540	
Q211	8-729-041-66	TRANSISTOR 2SC4015TV2	
Q212	8-729-271-31	TRANSISTOR 2SC2713-G	
Q301	8-729-107-45	TRANSISTOR 2SC3624A-L16	
Q302	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q303	8-729-014-87	TRANSISTOR 2SC4207-YGRTE85R	
Q304	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q307	8-729-046-32	TRANSISTOR 2SA1201-Y(TE12L.C)	
Q308	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q309	8-729-924-78	FET IRF540	

Ref. No.	Part No.	Description	Remark
Q310	8-729-053-85	FET IRF9540	
Q311	8-729-041-66	TRANSISTOR 2SC4015TV2	
Q312	8-729-271-31	TRANSISTOR 2SC2713-G	
Q401	8-729-107-45	TRANSISTOR 2SC3624A-L16	
Q402	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q403	8-729-014-87	TRANSISTOR 2SC4207-YGRTE85R	
Q404	8-729-014-85	TRANSISTOR 2SA1618-YGRTE85R	
Q407	8-729-046-32	TRANSISTOR 2SA1201-Y(TE12L.C)	
Q408	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q409	8-729-924-78	FET IRF540	
Q410	8-729-053-85	FET IRF9540	
Q411	8-729-041-66	TRANSISTOR 2SC4015TV2	
Q412	8-729-271-31	TRANSISTOR 2SC2713-G	
Q801	8-729-216-22	TRANSISTOR 2SA1162-G	
Q802	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q803	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q804	8-729-216-22	TRANSISTOR 2SA1162-G	
Q805	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q808	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q809	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q810	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q812	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q813	8-729-216-22	TRANSISTOR 2SA1162-G	
Q814	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q850	8-729-216-22	TRANSISTOR 2SA1162-G	
Q901	8-729-052-82	TRANSISTOR KTA1281Y-AT	
Q902	8-729-216-22	TRANSISTOR 2SA1162-G	
Q903	8-729-200-13	TRANSISTOR 2SC2712-Y	
Q904	6-550-341-01	FET FKV550N	
Q905	6-550-341-01	FET FKV550N	
Q906	6-550-341-01	FET FKV550N	
Q907	6-550-341-01	FET FKV550N	
Q908	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q909	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q910	8-729-209-15	TRANSISTOR 2SD2012	
Q911	8-729-209-60	TRANSISTOR 2SB1375	
Q912	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	
Q913	8-729-051-72	TRANSISTOR 2SC2881-Y(TE12L.C)	

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R101	1-216-837-11	METAL CHIP	22K	5%	1/10W
R102	1-216-837-11	METAL CHIP	22K	5%	1/10W
R103	1-216-845-11	METAL CHIP	100K	5%	1/10W
R104	1-216-845-11	METAL CHIP	100K	5%	1/10W
R105	1-216-837-11	METAL CHIP	22K	5%	1/10W
R106	1-216-837-11	METAL CHIP	22K	5%	1/10W
R111	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R113	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R114	1-216-845-11	METAL CHIP	100K	5%	1/10W
R115	1-216-845-11	METAL CHIP	100K	5%	1/10W
R117	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R118	1-216-833-11	METAL CHIP	10K	5%	1/10W
R119	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R120	1-216-819-11	METAL CHIP	680	5%	1/10W
R121	1-216-837-11	METAL CHIP	22K	5%	1/10W
R122	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R124	1-216-033-00	RES-CHIP	220	5%	1/10W
R126	1-216-214-00	RES-CHIP	4.7K	5%	1/8W
R127	1-216-837-11	METAL CHIP	22K	5%	1/10W
R128	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R129	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R130	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R131	1-216-837-11	METAL CHIP	22K	5%	1/10W
R132	1-216-837-11	METAL CHIP	22K	5%	1/10W
R133	1-249-409-11	CARBON	220	5%	1/4W
R134	1-249-409-11	CARBON	220	5%	1/4W
R135	1-216-809-11	METAL CHIP	100	5%	1/10W
R136	1-216-809-11	METAL CHIP	100	5%	1/10W
R137	1-216-845-11	METAL CHIP	100K	5%	1/10W
R138	1-216-845-11	METAL CHIP	100K	5%	1/10W
R139	1-249-417-11	CARBON	1K	5%	1/4W
R140	1-249-421-11	CARBON	2.2K	5%	1/4W
R142	1-216-033-00	RES-CHIP	220	5%	1/10W
R144	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R145	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R150	1-216-853-11	METAL CHIP	470K	5%	1/10W
R151	1-215-857-31	METAL OXIDE	10	5%	1W F
R158	1-205-991-11	METAL	0.1X2		5W
R201	1-216-837-11	METAL CHIP	22K	5%	1/10W
R202	1-216-837-11	METAL CHIP	22K	5%	1/10W
R203	1-216-845-11	METAL CHIP	100K	5%	1/10W
R204	1-216-845-11	METAL CHIP	100K	5%	1/10W
R205	1-216-837-11	METAL CHIP	22K	5%	1/10W
R206	1-216-837-11	METAL CHIP	22K	5%	1/10W
R211	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R213	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R214	1-216-845-11	METAL CHIP	100K	5%	1/10W
R215	1-216-845-11	METAL CHIP	100K	5%	1/10W
R217	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R218	1-216-833-11	METAL CHIP	10K	5%	1/10W
R219	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R220	1-216-819-11	METAL CHIP	680	5%	1/10W
R221	1-216-837-11	METAL CHIP	22K	5%	1/10W
R222	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R224	1-216-033-00	RES-CHIP	220	5%	1/10W
R226	1-216-821-11	METAL CHIP	1K	5%	1/10W
R227	1-216-837-11	METAL CHIP	22K	5%	1/10W
R228	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R229	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R230	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R231	1-216-837-11	METAL CHIP	22K	5%	1/10W
R232	1-216-837-11	METAL CHIP	22K	5%	1/10W
R233	1-249-409-11	CARBON	220	5%	1/4W
R234	1-249-409-11	CARBON	220	5%	1/4W
R235	1-216-809-11	METAL CHIP	100	5%	1/10W
R236	1-216-809-11	METAL CHIP	100	5%	1/10W
R237	1-216-845-11	METAL CHIP	100K	5%	1/10W
R238	1-216-845-11	METAL CHIP	100K	5%	1/10W
R239	1-249-417-11	CARBON	1K	5%	1/4W
R240	1-249-421-11	CARBON	2.2K	5%	1/4W
R242	1-216-033-00	RES-CHIP	220	5%	1/10W
R244	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R245	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R250	1-216-853-11	METAL CHIP	470K	5%	1/10W
R251	1-215-857-31	METAL OXIDE	10	5%	1W F
R258	1-205-991-11	METAL	0.1X2		5W

MAIN

Ref. No.	Part No.	Description			Remark
R301	1-216-837-11	METAL CHIP	22K	5%	1/10W
R302	1-216-837-11	METAL CHIP	22K	5%	1/10W
R303	1-216-845-11	METAL CHIP	100K	5%	1/10W
R304	1-216-845-11	METAL CHIP	100K	5%	1/10W
R305	1-216-837-11	METAL CHIP	22K	5%	1/10W
R306	1-216-837-11	METAL CHIP	22K	5%	1/10W
R307	1-216-833-11	METAL CHIP	10K	5%	1/10W
R308	1-216-837-11	METAL CHIP	22K	5%	1/10W
R309	1-216-833-11	METAL CHIP	10K	5%	1/10W
R310	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R311	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R312	1-216-833-11	METAL CHIP	10K	5%	1/10W
R313	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R314	1-216-845-11	METAL CHIP	100K	5%	1/10W
R315	1-216-845-11	METAL CHIP	100K	5%	1/10W
R316	1-216-845-11	METAL CHIP	100K	5%	1/10W
R317	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R318	1-216-833-11	METAL CHIP	10K	5%	1/10W
R319	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R320	1-216-819-11	METAL CHIP	680	5%	1/10W
R321	1-216-837-11	METAL CHIP	22K	5%	1/10W
R322	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R324	1-216-033-00	RES-CHIP	220	5%	1/10W
R326	1-216-821-11	METAL CHIP	1K	5%	1/10W
R327	1-216-837-11	METAL CHIP	22K	5%	1/10W
R328	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R329	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R330	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R331	1-216-837-11	METAL CHIP	22K	5%	1/10W
R332	1-216-837-11	METAL CHIP	22K	5%	1/10W
R333	1-249-409-11	CARBON	220	5%	1/4W
R334	1-249-409-11	CARBON	220	5%	1/4W
R335	1-216-809-11	METAL CHIP	100	5%	1/10W
R336	1-216-809-11	METAL CHIP	100	5%	1/10W
R337	1-216-845-11	METAL CHIP	100K	5%	1/10W
R338	1-216-845-11	METAL CHIP	100K	5%	1/10W
R339	1-249-417-11	CARBON	1K	5%	1/4W
R340	1-249-421-11	CARBON	2.2K	5%	1/4W
R342	1-216-033-00	RES-CHIP	220	5%	1/10W
R344	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R345	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R350	1-216-853-11	METAL CHIP	470K	5%	1/10W
R351	1-215-857-31	METAL OXIDE	10	5%	1W F
R358	1-205-991-11	METAL	0.1X2		5W
R401	1-216-837-11	METAL CHIP	22K	5%	1/10W
R402	1-216-837-11	METAL CHIP	22K	5%	1/10W
R403	1-216-845-11	METAL CHIP	100K	5%	1/10W
R404	1-216-845-11	METAL CHIP	100K	5%	1/10W
R405	1-216-837-11	METAL CHIP	22K	5%	1/10W
R406	1-216-837-11	METAL CHIP	22K	5%	1/10W
R407	1-216-833-11	METAL CHIP	10K	5%	1/10W
R408	1-216-837-11	METAL CHIP	22K	5%	1/10W
R409	1-216-833-11	METAL CHIP	10K	5%	1/10W
R410	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R411	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R412	1-216-833-11	METAL CHIP	10K	5%	1/10W
R413	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R414	1-216-845-11	METAL CHIP	100K	5%	1/10W
R415	1-216-845-11	METAL CHIP	100K	5%	1/10W
R416	1-216-845-11	METAL CHIP	100K	5%	1/10W
R417	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R418	1-216-833-11	METAL CHIP	10K	5%	1/10W
R419	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R420	1-216-819-11	METAL CHIP	680	5%	1/10W
R421	1-216-837-11	METAL CHIP	22K	5%	1/10W
R422	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R424	1-216-033-00	RES-CHIP	220	5%	1/10W
R426	1-216-821-11	METAL CHIP	1K	5%	1/10W
R427	1-216-837-11	METAL CHIP	22K	5%	1/10W
R428	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R429	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R430	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R431	1-216-837-11	METAL CHIP	22K	5%	1/10W
R432	1-216-837-11	METAL CHIP	22K	5%	1/10W
R433	1-249-409-11	CARBON	220	5%	1/4W
R434	1-249-409-11	CARBON	220	5%	1/4W
R435	1-216-809-11	METAL CHIP	100	5%	1/10W
R436	1-216-809-11	METAL CHIP	100	5%	1/10W
R437	1-216-845-11	METAL CHIP	100K	5%	1/10W
R438	1-216-845-11	METAL CHIP	100K	5%	1/10W
R439	1-249-417-11	CARBON	1K	5%	1/4W
R440	1-249-421-11	CARBON	2.2K	5%	1/4W
R442	1-216-033-00	RES-CHIP	220	5%	1/10W
R444	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R445	1-216-830-11	METAL CHIP	5.6K	5%	1/10W
R450	1-216-853-11	METAL CHIP	470K	5%	1/10W
R451	1-215-857-31	METAL OXIDE	10	5%	1W F
R458	1-205-991-11	METAL	0.1X2		5W
R800	1-216-857-11	METAL CHIP	1M	5%	1/10W
R801	1-216-821-11	METAL CHIP	1K	5%	1/10W
R802	1-216-833-11	METAL CHIP	10K	5%	1/10W
R803	1-216-841-11	METAL CHIP	47K	5%	1/10W
R804	1-216-841-11	METAL CHIP	47K	5%	1/10W
R805	1-216-839-11	METAL CHIP	33K	5%	1/10W
R806	1-216-833-11	METAL CHIP	10K	5%	1/10W
R807	1-216-833-11	METAL CHIP	10K	5%	1/10W
R808	1-216-833-11	METAL CHIP	10K	5%	1/10W
R809	1-216-833-11	METAL CHIP	10K	5%	1/10W
R810	1-216-857-11	METAL CHIP	1M	5%	1/10W
R811	1-249-421-11	CARBON	2.2K	5%	1/4W
R812	1-249-417-11	CARBON	1K	5%	1/4W
R818	1-216-833-11	METAL CHIP	10K	5%	1/10W
R820	1-216-833-11	METAL CHIP	10K	5%	1/10W
R821	1-249-417-11	CARBON	1K	5%	1/4W
R824	1-216-845-11	METAL CHIP	100K	5%	1/10W
R825	1-216-833-11	METAL CHIP	10K	5%	1/10W
R826	1-216-833-11	METAL CHIP	10K	5%	1/10W
R827	1-216-833-11	METAL CHIP	10K	5%	1/10W
R828	1-216-833-11	METAL CHIP	10K	5%	1/10W
R829	1-216-833-11	METAL CHIP	10K	5%	1/10W
R830	1-216-833-11	METAL CHIP	10K	5%	1/10W
R838	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R839	1-216-857-11	METAL CHIP	1M	5%	1/10W
R841	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R843	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R845	1-216-827-11	METAL CHIP	3.3K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R847	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R850	1-216-833-11	METAL CHIP	10K	5%	1/10W
R854	1-216-841-11	METAL CHIP	47K	5%	1/10W
R855	1-216-841-11	METAL CHIP	47K	5%	1/10W
R856	1-216-841-11	METAL CHIP	47K	5%	1/10W
R870	1-216-295-11	SHORT CHIP	0		
R901	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R902	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R903	1-216-836-11	METAL CHIP	18K	5%	1/10W
R904	1-216-836-11	METAL CHIP	18K	5%	1/10W
R905	1-216-849-11	METAL CHIP	220K	5%	1/10W
R906	1-216-210-00	RES-CHIP	3.3K	5%	1/8W
R907	1-249-417-11	CARBON	1K	5%	1/4W
R909	1-216-827-11	METAL CHIP	3.3K	5%	1/10W
R910	1-216-833-11	METAL CHIP	10K	5%	1/10W
R911	1-216-833-11	METAL CHIP	10K	5%	1/10W
R912	1-249-411-11	CARBON	330	5%	1/4W
R913	1-216-819-11	METAL CHIP	680	5%	1/10W
R914	1-216-819-11	METAL CHIP	680	5%	1/10W
R915	1-216-833-11	METAL CHIP	10K	5%	1/10W
R916	1-216-150-11	RES-CHIP	10	5%	1/8W
R917	1-216-819-11	METAL CHIP	680	5%	1/10W
R918	1-216-819-11	METAL CHIP	680	5%	1/10W
R920	1-216-150-11	RES-CHIP	10	5%	1/8W
R921	1-216-150-11	RES-CHIP	10	5%	1/8W
R922	1-216-150-11	RES-CHIP	10	5%	1/8W
R923	1-216-065-11	RES-CHIP	4.7K	5%	1/10W
R924	1-216-065-11	RES-CHIP	4.7K	5%	1/10W
R925	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R927	1-216-206-00	RES-CHIP	2.2K	5%	1/8W
R929	1-216-013-00	RES-CHIP	33	5%	1/10W
R930	1-216-013-00	RES-CHIP	33	5%	1/10W
R931	1-216-821-11	METAL CHIP	1K	5%	1/10W
R932	1-216-821-11	METAL CHIP	1K	5%	1/10W
R933	1-216-821-11	METAL CHIP	1K	5%	1/10W
R934	1-216-821-11	METAL CHIP	1K	5%	1/10W
		< CERMET RESISTOR >			
RV104	1-241-762-11	RES, ADJ, CERMET 2.2K			
RV204	1-241-762-11	RES, ADJ, CERMET 2.2K			
RV304	1-241-762-11	RES, ADJ, CERMET 2.2K			
RV404	1-241-762-11	RES, ADJ, CERMET 2.2K			
		< VARIABLE RESISTOR >			
RV801	1-225-647-11	RES, VAR, CARBON 20KX4 (FILTER (FRONT))			
RV802	1-225-648-12	RES, VAR, CARBON 5KX2 (LOW BOOST (40Hz) (FRONT))			
RV803	1-225-648-12	RES, VAR, CARBON 5KX2 (LEVEL (FRONT))			
RV804	1-225-647-11	RES, VAR, CARBON 20KX4 (FILTER (REAR))			
RV805	1-225-648-12	RES, VAR, CARBON 5KX2 (LOW BOOST (40Hz) (REAR))			
RV806	1-225-648-12	RES, VAR, CARBON 5KX2 (LEVEL (REAR))			
		< SWITCH >			
S801	1-692-990-21	SWITCH, SLIDE (FILTER (FRONT))			
S802	1-692-938-11	SWITCH, SLIDE (FILTER (REAR))			

Ref. No.	Part No.	Description	Remark
		< TRANSFORMER >	
T801	1-439-636-11	TRANSFORMER, DC-DC CONVERTER	
		< THERMISTOR (NEGATIVE) >	
THN801	1-804-301-11	THERMISTOR, CHIP	
THN804	1-804-301-11	THERMISTOR, CHIP	
THN805	1-804-301-11	THERMISTOR, CHIP	
THN806	1-804-301-11	THERMISTOR, CHIP	
THN807	1-804-301-11	THERMISTOR, CHIP	

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2003. 11	New
1.1	2005. 05	Change the MAIN, HI-LEVEL and LED boards. (ECN-ECA96750)